



SOCIETY FOR DESIGN AND  
PROCESS SCIENCE



SOFTWARE ENGINEERING  
SOCIETY

FINAL PROGRAM  
THE NINTH  
WORLD CONFERENCE ON

# INTEGRATED & PROCESS TECHNOLOGY

**CELEBRATING**  
**A Decade of Transdisciplinary**  
**Education and Research**

*Conference theme: Innovation  
through Transdisciplinary Science  
& Application*

**MARRIOTT DEL MAR,  
SAN DIEGO, CALIFORNIA**

**June 25-30, 2006**

## SPONSORED BY

Society for Design & Process Science (SDPS)

Software Engineering Society (SES)

Academy for Transdisciplinary Education (ATE),

Texas Tech University, TX

Intelligent Systems Technology Inc., CA



# DESIGN

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IC<sup>2</sup> Institute, The University of Texas, TX

IOS Press BV, Amsterdam, The Netherlands



**Dr. George Kozmetsky (1917-2003)**  
*Former Chairman of the Board  
Society for Design and Process Science*

### **Transdisciplinary Design and Process: The George Kozmetsky Way**

During the last decade, urged by our transdisciplinary mentor George Kozmetsky, IDPT conferences brought together interdisciplinary as well as international educators, thinkers and leaders for the purpose of working towards the development of principles and ideas for multidisciplinary modes of research and education. A generally accepted observation by the participants, building on Herb Simon's ideas on the centrality of design, has been that the notions of design and process are fundamental enough to warrant more attention.

The concepts of design and process span all disciplines, providing the patterns, insight, and logic necessary to apply knowledge and skills to any problem. Biology provides the vast laboratory for natural processes and designs. From the pragmatic point of view, our hypothesis is that the systematic study of these pervading concepts for their own sake provides us the necessary tools and methods to maintain intellectual control over large projects and natural phenomena, preventing information overflow. Complex natural processes and designs are highly suitable examples to study using abstract mathematical notions of process and design. Conversely, the systematic study of biological processes, by applying lessons learned from design and process science, would allow us to overcome the shortcomings of the classical, Cartesian-mechanistic, reductionist foundations, and methods of traditional sciences and engineering.

Herb Simon, discussing "holism and reductionism" in the little book, *The Sciences of the Artificial*, eludes the establishment of critical balance between holistic thinking and mechanistic thinking. There is an obvious parallel between "disciplinary/transdisciplinary" thinking and "reductionism/holism." There are certain aspects of transdisciplinary analysis that introduces a "greater logical economy" in our treatment of everyday concrete, natural, and man-made processes including our engineering activities and business relationships. "The greater logical economy" is what we need these days more than any other time in the history of mankind. Transdisciplinary way of acquiring knowledge means that education, research, development, production, and training are intertwined in such a way that we obtain a better picture and a higher level of abstraction.

During IDPT 1996 opening speech George said "The interdisciplinary theories and methodologies must embrace as well as have the ability to account for relevant cultural and social value factors. This is especially important in developing shared prosperity through commercialization of the key resources of world-class science and technology. The methods of dissemination, cooperation and collaboration must include the utilization of ubiquitous computers and communication." This year, SDPS is celebrating its decade of growth and progress. Since 1995, in the spirit of George, we came a long way. Had George seen this year's program, he would be proud of it. We are sure, he is smiling today. Thanks, George.

*A. Ertas and M. M. Tanik*

# IDPT SPECIAL EVENT

## ESTABLISHING KOZMETSKY-RAMAMOORTHY ENDOWMENT



**Kozmetsky - Ramamoorthy  
Endowment  
(KRE)**



**Celebrating the 80<sup>th</sup> Birthday of Dr. C.V. Ramamoorthy and  
Kozmetsky - Ramamoorthy Endowment  
Sponsored by Intelligent Systems Technology Inc., CA**

**June 27, 2006, Tuesday 7:00 pm - 9:30 pm Ramamoorthy Dinner  
MARRIOTT DEL MAR**

**Room: Grand Ballroom Salons E-H**

Michio Kaku in his popular "Visions" book clearly sees the upcoming worldwide significance of transdisciplinary notions by saying the heyday of reductionism has passed. Seemingly impenetrable obstacles have been encountered which cannot be solved by the simple reductionist approach. This is heralding a new era, one of synergy between the three fundamental revolutions. The three fundamental revolutions he is talking about are: quantum, computer, and bio-molecular revolution. However, Dr. Kaku, does not provide a clear roadmap to a solution for synergy in his almost 400 pages of excellent exposition in *Visions: How Science will Revolutionize the 21<sup>st</sup> Century*.

Dr. Kozmetsky and Dr. Ramamoorthy, fondly referred to as George and Ram among their students and friends, shared Kaku's vision and jointly with the other friends initiated the Society for Design and Process Science as social machinery to develop synergistic problem solving processes for the good of humanity.

Their friendship goes back to their youthful days in Harvard. Their lives took different directions after the Harvard days, only to be joined again through the SDPS activities. This is how SDPS first started: When we sought support from George to start SDPS, after listening politely for a while and asking a few penetrating questions, he simply said "Tell Ram to call me."

That was it. They joined forces and invited distinguished multidisciplinary friends all over the world, including Nobel laureates, Herb Simon and Ilya Prigogine. That was the spark for the establishment of SDPS.

SDPS, as the first transdisciplinary society, is their society and it is the embodiment of their restless imaginations, deep insights, and clear visions. The transdisciplinary genie is out of the bottle. There is no turning back from interdisciplinary cohesion and integrative attempts to solve the complex problems of humanity in the coming centuries. The era of individual disciplinary successes and accumulating disciplinary silos of locally-functional knowledge has ended with the 20<sup>th</sup> century.

The establishment of Kozmetsky - Ramamoorthy Endowment (KRE) is our small tribute to George and Ram for opening our eyes "how science will revolutionize the 21<sup>st</sup> century." We are grateful.

For donations to KRE, please contact:

**Atila Ertas**  
**Texas Tech University**  
**Email: [aertas@coe.ttu.edu](mailto:aertas@coe.ttu.edu)**



**IDPT  
2006**



## 2006 Ninth World Conference on Integrated Design & Process Technology

Marriott Del Mar, San Diego, California, USA  
June 25-30, 2006

### Welcome Message from Conference Co-Chairs

Welcome to IDPT 2006. It is indeed a pleasure for us to welcome our colleagues from across the globe to the glorious locale of Del Mar, California near San Diego. The planning for this conference began in 2004 when we decided to make Southern California the venue for this conference. The plan has come together wonderfully within our conference theme: The Vision of Innovation Through Transdisciplinary Science and Application. In keeping with this vision, we have an excellent array of speakers and topics. Notable topic additions in support of the conference theme are systems architecting, cognitive engineering, and system of systems engineering.

The emphasis on transdisciplinary research and education continues to grow internationally as we continue to confront challenges that cannot be overcome using methods within a single discipline. IDPT, which has been a trailblazer in this arena, expects to attract researchers and educators worldwide. With a view to advancing transdisciplinary studies, we look forward to this cross-fertilization with our international colleagues.

We have an exciting technical program featuring prominent invited speakers and complementary technical sessions. In keeping with the culture of SDPS, we are expecting a strong representation from multiple disciplines and countries. You will have opportunities to engage in technical interchanges with international colleagues, or simply have relaxing conversations with friends from near and far, take a stroll on the beach, watch the sunset, or listen to music in the immediate surrounds. Del Mar, with its picture-perfect beaches that stretch for miles and world renowned amusement parks and attractions, has something for everybody, young and old.

IDPT 2006 is made possible by the untiring efforts of several individuals starting with Professor Atila Ertas who, in addition to working every facet of this conference, is also the Program Chair. As expected, much of the inspiration for this conference comes from Dr. Raymond Yeh, Professor C.V. Ramamoorthy, Professor Murat Tanik, and a cast of other committed “transdisciplinary” on the Program Committee who have given selflessly of their time to make this conference a success. We’ve done George proud!

We look forward to seeing you all at IDPT 2006 and wish you a memorable stay in Del Mar.

*Azad M. Madni and Philip C-y Sheu  
Conference Co-Chairs, IDPT 2006*



# CONFERENCE CO-CHAIRS

## THE NINTH WORLD CONFERENCE ON INTEGRATED DESIGN & PROCESS TECHNOLOGY

June 25-30, 2006, MARRIOTT DEL MAR, SAN DIEGO, CA



**Dr. Azad M Madni**  
CEO

*Intelligent Systems Technology, Inc., CA*

Dr. Azad Madni is the Chairman and CEO of Intelligent Systems Technology, Inc., a company that he founded in 1994 to pursue innovative research in modeling and simulation for enterprise systems architecting, process design and transformation, and team training. He is the recipient of several prestigious, national awards including the SBA's National Tibbetts Award for California for excellence in technology innovation, Mass Mutual and U.S. Chamber of Commerce's Blue Chip Enterprise Award for entrepreneurship. He is the only two-time (2000, 2004) "Developer of the Year" Award winner from the Software Council of Southern California, a region of approximately 8000 software companies. He has been a Principal Investigator on more than sixty programs/projects sponsored by twenty-five different R&D organizations including DARPA, MDA, OSD, ONR, AFOSR, AFRL, U.S. Army's RDECOM, NIST, DOE, and NASA. He has received special awards and commendations from DARPA, the Office of the Secretary of Defense, and the U.S. Navy for his pioneering R&D contributions in modeling and simulation and for their application to national "agility" and concurrent engineering initiatives. Dr. Madni has written over three hundred and fifty refereed/peer reviewed technical publications including journal articles, book chapters, conference proceedings, research monographs, and technical reports on R&D projects. He has been a keynote or plenary speaker at several international and national conferences in concurrent engineering, systems engineering, agile manufacturing, advanced automation, and intelligent systems, and has given several invited lectures at major universities and research institutions. Dr. Madni has been featured in California CEO, Information Week and Los Angeles Business Journal. He has been a contributor to Zone, a magazine featuring emerging technology in Southern California, and has been a featured guest on TV and radio business shows on high technology business outlook. He currently serves on multiple Advisory Boards of the University of Southern California Viterbi School of Engineering. Prior to founding ISTI, he was with Perceptronics, Inc. for seventeen years where he served in various senior level executive and scientific positions, eventually as Executive Vice President for R&D and the Chief Technology Officer of the company. Dr. Madni has developed and taught highly successful national and international courses and seminars including Creating Sweaty Palms Effect through Modeling and Simulation Technologies, Infusion of Cognitive Engineering into Systems Engineering, Artificial Intelligence and Robotics, Intelligent Interfaces in Advanced Automation and Man-Machine Systems, and Developing and Managing High-Performance Organizations. He is an elected Fellow of the Institute of Electrical and Electronics Engi-

neers (IEEE), International Council on Systems Engineering (INCOSE), Society for Design and Process Science (SDPS), and an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA). He has been the General Chair or Program Chair for several international conferences and served on several administrative and program committees of international conferences. He is the 2006 President-Elect of the Society of Design and Process Science, a society of renowned international scientists and researchers committed to transdisciplinary education and research. Dr. Madni has been a Visiting Industrial Fellow of Caltech's/NASA's Jet Propulsion Laboratory in the Space Microelectronics Center. He received his Ph.D., M.S., and B.S. in Engineering from UCLA. He is also a graduate of the Executive Institute at Stanford University. He is listed in the Marquis' Who's Who in Science and Engineering, Who's Who in Industry and Finance, and Who's Who in America.



**Dr. Phillip C-y Sheu**  
Professor

*University of California, Irvine, CA*

Dr. Phillip C-Y. Sheu is currently a professor of Electrical Engineering & Computer Science, Information and Computer Science, and Biomedical Engineering at the University of California, Irvine. He received his Ph.D. degree from the University of California at Berkeley in Electrical Engineering and Computer Science in 1986. Prior to that, he worked as a computer scientist at Systems Control Technology, Inc., Palo Alto, CA., where he designed and implemented aircraft expert control systems, and he worked as a product planning engineer at Advanced Micro Devices Inc., Sunnyvale, CA, where he designed and integrated CAD systems. From 1986 to 1988, he was an assistant professor at School of Electrical Engineering, Purdue University. From 1989 to 1993, he was an associate professor of Electrical and Computer Engineering at Rutgers University.

He has published two books: (1) *Intelligent Robotic Planning Systems* and (2) *Software Engineering and Environment - An Object-Oriented Perspective*, and more than 100 papers in object-relational data and knowledge engineering and their applications, and biomedical computations. He is currently active in research related to complex biological systems, knowledge-based medicine, semantic software engineering, proactive web technologies, and large real-time knowledge systems for defense and homeland security. Dr. Sheu is a Fellow of IEEE.

# IDPT SPECIAL FEATURES

## THE NINTH WORLD CONFERENCE ON INTEGRATED DESIGN & PROCESS TECHNOLOGY June 25-30, 2006, MARRIOTT DEL MAR, SAN DIEGO, CA



**OPENING RECEPTION**  
Sunday, June 25, 5:30-7:00 pm  
Room:  
Rancho Santa Fe Ballroom

**Dr. Vicki Rainey**  
*Dyersburg Community  
College, TN*

Dr. Vicki Rainey is a native of Dyersburg, Tennessee. She received her B.S. in Secondary Education from the University of Tennessee – Martin (1968), an M.S. in Mathematics from the University of Mississippi (1970), a Ph.D. in Higher Education (mathematics concentration) at the University of Mississippi (1979), and an M.A. in Counseling from Amberton University (2001).

Dr. Rainey began her career as a math teacher for the Memphis City Schools from 1969 through 1975. In the Fall of 1975, she joined the mathematics staff at Shelby State Community College (consolidated as a part of Southwest Tennessee Community College) where she attained the rank of Associate Professor of Mathematics. During 1973-74, Dr. Rainey also served on the adjunct staff for State Technical Institute (consolidated as a part of Southwest Tennessee Community College) as a mathematics instructor.

In November of 1980, Dr. Rainey left West Tennessee to work as a software engineer for E-Systems, a small defense company in the suburbs of Dallas, Texas. In 22 years at the Texas location, including acquisition by the defense giant Raytheon, she rose to the rank of Director, Software Engineering responsible for the management and technical direction of up to 850 engineers.

As Director, Software Engineering, Dr. Rainey worked with several universities to aid in the coordination of industrial needs and academic curricula. She was also active in the efforts to integrate engineering concepts into other academic areas through sponsoring of transdisciplinary education. Dr. Rainey presented her ideas through publications, national presentations, international presentations, and development of societies and academies to further these ideas. Her involvement with the theory behind the way engineering processes blend with other subjects and the way engineers approach problem solving, led her to pursue a degree in counseling.

After completing her counseling degree and “retiring” from Raytheon to return home, Dr. Rainey was hired as an instructor of developmental mathematics at Dyersburg State Community College. She has developed a new, or rather a reinvented, career as a teacher of developmental mathematics, a teacher of college level mathematics and a coordinator for a drop-in tutoring service sponsored by DSCC. She has since been appointed to an Associate Professor tenure-track position and is involved in a variety of activities including the development of an interactive CD for students with test anxiety, pairing basic algebra and study skills courses, and creating tutor training and mentoring materials.



**OPENING ADDRESS**  
Monday, June 26, 8:00-8:30 am  
Room:  
Grand Ballroom Salons A-D

**Dr. Stephen Szygenda**  
*Cecil H. Green Chair  
College of Engineering, SMU, TX*

Dr. Szygenda holds the Cecil H. Green Chair in Engineering at SMU, where he served as Dean of Engineering from 2000 to 2004. Before assuming the position of Dean at SMU, he was the Dean of Engineering at the University of Alabama at Birmingham (UAB), from 1996 to 2000, and Chairman of the Electrical and Computer Engineering Department (ECE) at The University of Texas at Austin (1993 to 1996), where he also held the Clint Murchison Sr. Chair of Free Enterprise (1986 to 1996), and served as Director of the Center for Technology Development and Transfer (CTDT). CTDT was created by the Texas Legislature, to facilitate the commercialization of technology from Texas universities. As Dean and Chairman he revamped and broadened various areas of engineering education to address the needs of engineering in the 21<sup>st</sup> century, established the Engineering and Beyond brand, and introduced many new programs, including: Executive Masters Degree Programs in Engineering, Industry Scholars Programs, Red Shirt Engineers Program, Gender Equity Program, distance education programs, the development of a Productivity Metric, etc. He also developed Executive Advisory Boards, made up of numerous industry leaders, to assist in planning for the future and acquiring the necessary resources to advance the engineering and computer programs. In 1973 Dr. Szygenda formed a company, CCSS, which was the first multi-product simulation and test company, producing very large software and hardware systems. In 1980 this company was sold to COMSAT, where Dr. Szygenda remained as president; leading the company through a rapid international growth phase by dramatically increasing sales and market prominence throughout the world. The company was subsequently sold to G.E. in 1983. At that time he became CEO and President of the Rubicon Group; a unique high technology incubator, comprised of 10 technology companies. Dr. Szygenda's model for technology transfer and incubation has been widely published and adopted, in various forms. In the 1960s he was at Bell Telephone Laboratories. During that period he was involved in the development of the #1 ESS. Over the years he has graduated more than 150 M.S. and 50 Ph.D. students, acquired extensive government and industrial research funding, received numerous awards, served on the boards of numerous companies, consulted for more than 50 international companies, and published more than 150 papers and seven book chapters. His areas of expertise include: technology entrepreneurship; start-up companies; incubators; management and planning; technology transfer; software engineering; telecommunications engineering; simulation and diagnosis; automatic programming; fault-tolerant computing; reliability and maintainability, and leadership.

# KEYNOTE PANEL

8:30 am - 3:00 pm

Monday June 26, 2006

Room: Grand Ballroom Salons A-D

## TRANSDISCIPLINARY COLLABORATION IN ADVANCE EDUCATION & RESEARCH

**Organizer:** Dr. Atila Ertas, Texas Tech University

**Panel Chair:** Dr. Raymond T. Yeh



**Dr. Raymond T. Yeh**

Dr. Yeh taught computer science at Pennsylvania State University, the University of Texas at Austin, the University of Minnesota, and the University of Maryland at College Park. He was also Chairman of the Department of Computer Sciences at both Texas and Maryland. Under his leadership, he helped both departments to gain top-ten ranking nationally. He was the Control Data Corporation Distinguished professor at the University of Minnesota, and is an honorary professor at four leading universities in China. He is founding editor-in-chief of IEEE Transactions on Software Engineering as well as Journal on Systems Integration and is on the editorial board of various journals. He also founded the Technical Committee on Software Engineering as well as the International Software Engineering Conference (ICSE) within the IEEE.

He has published 10 books, including the four volume classic on Programming Methodology published by Prentice-Hall, and more than 120 scientific articles. Most recently, he co-authored his first business book "Zero Time" published by John Wiley & Sons. in August, 2000. He founded three successful software companies during the time of 1983 to 1999. Dr. Yeh served as a board member for several organizations. He has also served as a management consultant to many nations including United Nations, US, Sweden, Japan, China, Taiwan, and Singapore as well as to world-class organizations including IBM, AT&T, Siemens (Germany), IISis (Brazil), Fujitsu (Japan), NEC (Japan), Hitachi (Japan), Price Waterhouse, Singapore Housing and Economic Development Boards, etc. He is a fellow of Institute of Electrical and Electronic Engineers (IEEE), Society for Design and Process Science (SDPS), and a senior research fellow at the ICC Institute at the University of Texas at Austin. He was an honorary research fellow at Fujitsu from 1976 to 1985. He is a co-founder of the Society for Design and Process Science and its first President, and co-founder of the Software Engineering Society.

Dr. Yeh is a recipient of the IEEE Centennial Medal, the IEEE Golden-Core award, Special Award of the IEEE Computer Society, the SDPS Awards for Scholarship and Lifetime Achievement, as well as Visionary Leadership in Information Technology Award from the government of Taiwan, among others.

# KEYNOTE SPEAKER

Monday, June 26, 8:30-9:00 am

Room: Grand Ballroom Salons A-D



**Dr. Steadman Upham**  
*President of  
University of Tulsa, OK*

Steadman Upham was named president of The University of Tulsa in June 2004, after having served as president of Claremont Graduate University for six years. Prior to this time, he served as vice provost for research and dean of the Graduate School and professor of archaeology at the University of Oregon.

He has provided extensive service to the scholarly professions. He has been president of both the National Physical Science Consortium and the Western Association of Graduate Schools. He was the 1999 chair of the Council of Graduate Schools' Board of Directors, and has served on the executive committees of the Association of Graduate Schools of the Association of American Universities and the Council on Research Policy and Graduate Education of the National Association of State Universities and Land-Grant Colleges. He also served as commissioner for the Western Association of Schools and Colleges Accrediting Commission. President Upham is currently a director of the American Mutual Funds.

Dr. Upham has written numerous books and scholarly articles on the prehistory and archaeology of the American Southwest. He is a fellow of the American Anthropological Association and a member of Sigma Xi, the international honor society of scientific and engineering research. President Upham received numerous awards for his teaching and research while serving as a faculty member at New Mexico State University and the University of Oregon.

# DISTINGUISHED SPEAKERS

Monday, June 26, 9:00 am - 3:00 pm

Room: Grand Ballroom Salons A-D



**Dr. Juan M. Sanchez**  
*Vice President for  
Research, The University  
of Texas at Austin, TX*

Dr. Juan M. Sanchez is the Vice President for Research at The University of Texas at Austin and holder of the Temple Foundation Endowed Professorship #4 in the Department of Mechanical Engineering. He obtained his B.S. in Physics at the University of Cordoba, Argentina, 1971; M.S. in Materials Science, 1974; and Ph.D. in Materials Science, 1977 at the University of California, Los Angeles.

Dr. Sanchez is the author and co-author of over 140 technical publications on a wide range of topics in materials science and engineering. His current research interests are in the electronic, thermodynamic and structural properties of materials including intermetallic compounds, magnetic and non-magnetic alloys, thin films and magnetic multilayers. His primary interest is the development and application of first principles computational methods for the



construction of phase diagrams of multicomponent material systems. Other research interests include the development of laser-controlled selective chemical vapor deposition processes for metals, alloys and ceramics.

Dr. Sanchez serves on the Council of Federal Relations of the Association of American Universities; on the Board of Directors as Council Vice Chair for the Oak Ridge Associated Universities, and the Texas Nanotechnology Initiative. He also serves as a Representative to the Government-University-Industry Research Roundtable of the National Academies, as Trustee for the Southeastern Universities Research Association, Inc., as a Member of the Institutional Oversight Board Member for the National Partnership for Advanced Computing Infrastructure (NPACI), Institutional Oversight Board Member for the National Partnership for Advanced Computing Infrastructure (NPACI), the Board of Visitors of the US Army War College, Member of the International Consulting Board, Advisory Board for the Texas Coalition for Capital, and the National Scientific and Policy Advisory Council for the Hogg Foundation for Mental Health.



**Dr. Helmut Hoyer**  
*Rector (Vice Chancellor)*  
*FernUniversität,*  
*Hagen, Germany*

Dr. Helmut Hoyer is Rector (Vice Chancellor) at the FernUniversität in Hagen, Germany, since 1997 and since 2001 he is the Chairman of Rectors Conference in the state of North Rhine-Westphalia, Germany. He also acted as the Dean of the Faculty of Electrical Engineering and Information Engineering and the Pro-Rector (Pro-Vice Chancellor) of Planning and Finances from 1993 - 1997. Dr. Hoyer attained the rank of full professor and is the head of the Chair of Control Systems Engineering. Prior to joining the FernUniversität, Dr. Hoyer was a group manager and senior researcher in the field of "Robot Control and Multi-Robots Systems" in the Institute of Robotics Research (IRF) at the University of Dortmund. In his research Dr. Hoyer was focusing on robotics and assistive technologies for elderly people and people with disabilities. The focal points of his interest and activities during his term of office as a Rector were the introduction of New Media in Higher Education and the transition of the FernUniversität into a Virtual University.



**Dr. Ziya Aktas**  
*President*  
*Cankaya University,*  
*Ankara, Turkey*

Ziya Aktas was born in 1940. He got his BS and MS in 1962 and 1963, respectively, both at METU (Middle East Technical University) in Ankara. He had a Fulbright Scholarship in 1966 and went to the USA for graduate study. He received his Ph.D. in 1969 at Lehigh University, Bethlehem, Pennsylvania/USA. He returned home in the same year and joined today's Department of Computer Engineering at METU. He visited Vienna Technical University as an associate professor during the school year 1973-1974. He became a full professor in 1978, and was the first full professor of Computer Science/Engineering in Turkey. Prof. Aktas served as the chairman of the Department during 1977-81 and 1983-1988.

Prof. Aktas taught at Purdue University School of Engineering and Technology at Indianapolis, Indiana, USA, between 1981-1983 as a Visiting Professor. Between 1988-1991 he became the founding

General Manager of a technical consultancy firm, STRABIS, in Ankara. He is the author of the book "Structured Analysis and Design of Information Systems" published by Prentice Hall in 1987 in the USA.

He has been a faculty member of the Department of Computer Engineering, METU and also served as the Vice President of State Institute of Statistics (SIS) of Turkey in charge of Information Systems during 1992-1995.

In the general elections of December 1994 and April 1999 he was elected as the Deputy of Istanbul in the Democratic Left Party (DSP) to the Turkish Grand National Assembly. Prof. Aktas had served as the Minister of Energy and Natural Resources in the Ecevit's Cabinet during January 11-May 28, 1999. He has been a member of IPU (Inter-Parliamentary Union) and Chairman of the Information and Information Technology Group in the Turkish Parliament and Vice President of Turkish - US Interparliamentarian Friendship Group.

Since May 24, 2004 he is the President (rector) of Çankaya University – Ankara. Prior to that he served as Acting Rector at the same university during 07.11.2003 – 24.05.2004. He also served as the Dean of School of Engineering and Architecture of Çankaya University. Prof. Aktas is a member of ACM, TBD and a Board Member of TBV.



**Dr. Jeffrey J.P. Tsai**  
*Founding President*  
*Taichung Healthcare and*  
*Management University*  
*Taichung, Taiwan*

Jeffrey J.P. Tsai received his Ph.D. degree in Computer Science from the Northwestern University, Evanston, Illinois. He is a Professor in the Department of Electrical Engineering and Computer Science at the University of Illinois at Chicago, where he is also the Director of the Distributed Real-Time Intelligent Systems Laboratory. He co-authored Knowledge-Based Software Development for Real-Time Distributed Systems (World Scientific, 1993), Distributed Real-Time Systems: Monitoring, Visualization, Debugging, and Analysis (John Wiley and Sons, Inc., 1996), Compositional Verification of Concurrent and Real-Time systems (Kluwer, 2002), co-edited Monitoring and Debugging Distributed Real-Time Systems (IEEE/CS Press, 1995), and has published over 160 papers in the areas of knowledge-based software engineering, software architecture, requirements engineering, formal methods, agent-based systems, and distributed real-time systems.

Dr. Tsai was the recipient of a University Scholar Award from the University of Illinois in 1994, and was presented a Technical Achievement Award from the IEEE Computer Society in 1997. He is the Co-Editor-in-Chief of the International Journal of Artificial Intelligence Tools and on the editorial board of the International Journal of Software Engineering and Knowledge Engineering, and chairs the IEEE/CS Technical Committee on Multimedia. He is a Fellow of the IEEE, the AAAS, and the SDPS.



**Dr. John Borrelli**  
*Dean*  
*Graduate School*  
*Texas Tech University, TX*

John Borrelli became Dean of the Graduate School at Texas Tech University in June 2003. He holds a B.S. and M.S. in Agricultural Engineering from Colorado State University and a Ph.D. in Civil



Engineering from The Pennsylvania State University. From 1973 to 1975 he went to work for the University of Wisconsin Madison as an Irrigation Specialist on an agricultural project in Brazil. During the period from 1975 to 1985, he taught at the University of Wyoming where he was President of the Faculty Senate and Director of the Water Resources Management master's program in addition to his regular teaching and research duties. From 1985 to present he has taught at Texas Tech University where he has held a variety of administrative positions including Department Chair of Agricultural Engineering, Interim Chair of Civil Engineering, Associate Dean of Engineering for Academic Affairs, Interim Dean of Architecture, Senior Associate Dean of Engineering, and Dean of the Graduate School.

Dr. Borrelli has done extensive research in irrigation and water resources. He currently has written a manual on the water use of crops and evaporation from lakes that is being extensively used throughout the State of Texas. His recent research has been on the vegetation management of highway rights-of-way.



**Dr. Troy Henson**  
*Dean*  
*College of Engineering*  
*and Computer Science*  
*The University of Texas*  
*at Tyler, TX*

Troy Henson became Dean of the College of Engineering at The University of Texas at Tyler in January 2000. Subsequently the Department of Computer Science was merged with the college to form the current College of Engineering and Computer Science. Prior to joining UT Tyler, he was Dean of the School of Engineering at The University of Tennessee at Martin.

Dr. Henson holds BS and MS degrees in Electrical Engineering from the University of Arkansas and the Ph.D. in Electrical Engineering from The University of Texas at Austin. He is a licensed Professional Engineer in Arkansas, Tennessee, and Texas.

In addition to the five years he served as Dean of the School of Engineering at The University of Tennessee at Martin, his experience includes more than 18 years with IBM Corporation, in Huntsville, Alabama, and Houston, Texas; five years (1981-1986) on the Electrical Engineering faculty at Louisiana Tech University in Ruston, Louisiana; and seven years (1987-1994) as a part-time member of the Electrical and Computer Engineering faculty at Rice University in Houston, Texas.

He originally joined IBM in 1966 in Huntsville, Alabama, in the Control Systems Design Department. While with IBM, he was a member of the team that designed and tested the flight control system for the Saturn Launch Vehicle in the NASA Apollo Program. Later, he worked on the guidance, navigation and control system for the NASA Skylab, Large Space Telescope, and Space Shuttle vehicles. In his last few years (1986-1993) with the IBM Corporation, Federal Systems Company, he was managing Independent Research and Development (IRAD) projects and conducting and directing research in the areas of artificial neural networks, systems engineering, and software engineering.

Troy Henson is a member of the Arkansas Academy of Electrical Engineering; a member of the American Society for Engineering Education (ASEE); a member of the National Society of Professional Engineers (NSPE), where he serves on the Education Advisory Group; a member of the Texas Society of Professional Engineers (TSPE); a senior member of the Institute of Electrical and Electronics Engineers (IEEE), and a member of several honor societies, including Tau Beta Pi, Eta Kappa Nu, Sigma Xi, Phi Kappa Phi, and Omicron Delta Kappa.



**Dr. W.T. Chen**  
*President*  
*National Tsing Hua University,*  
*Taiwan*

WT Chen is the president of the National Tsing Hua University in Taiwan. He has been with the National Tsing Hua University since 1976 and is currently a Chair Professor of the Department of Computer Science. He has served as Department Chairman, Dean of College of Electrical Engineering & Computer Science, and Director of Science & Technology Advisory Office, Ministry of Education. He has consulted in various levels of Taiwan Government and served as a member of many planning and technical review boards. For 15 years, Professor Chen has served as Co-Chairman and Chairman of the Technical Evaluation Board of the Ministry of Economic Affairs for Promoting High-Tech Products and Technologies, which is recognized as most pivotal in promoting industrial technologies in Taiwan.

Professor Chen pioneered the design of computer networks and parallel systems in early 1980s. He is currently leading a project for design and applications of advanced information networks. He has received numerous awards for his achievements in computer networking and parallel processing, including Outstanding Research Awards of the National Science Council, National Chair of the Ministry of Education, and Technical Achievement Award of the IEEE Computer Society. Professor Chen was the General Chair of the 2000 IEEE International Conference on Distributed Computing Systems and the Founding General Chair of the IEEE International Conference on Parallel and Distributed Systems. He is an IEEE Fellow.



**Dr.-Ing. Reiner W. Hartenstein**  
*Professor, Kaiserslautern*  
*University of Technology*  
*Germany*

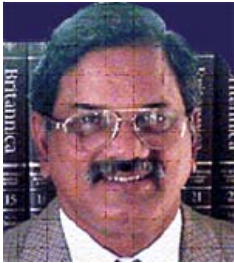
## **The Transdisciplinary Responsibility of CS Curricula**

Dr.-Ing. Reiner W. Hartenstein is professor of Computer Science and Engineering at Kaiserslautern University of Technology (TU Kaiserslautern), where his most recent research focuses on Reconfigurable Computing (RC), Reconfigurable Supercomputing, Configware / Software Co-Compilation, and design flows for RC in embedded systems. Reiner Hartenstein is an IEEE life fellow, FPL fellow, and member of the ACM. He has published more than 400 professional papers for journals and conference proceedings, and has authored or co-edited 14 books. Reiner Hartenstein frequently receives invitations to give keynote addresses at international conferences. In 1981 he was visiting professor at University of California at Berkeley.

Before joining TU Kaiserslautern he was a professor at University of Karlsruhe. He has graduated more than 100 M.S. and 25 Ph.D. students. He acquired extensive government and industrial research funding, received several awards, and consulted for more than 10 international companies.

Reiner Hartenstein received all his academic degrees from the EE Department at University of Karlsruhe (TH), where he was the first Ph.D. graduate student of Karl Steinbuch, the pioneer of artificial neuronal networks. Hartenstein's background from earlier activities also covers pattern recognition, image processing, hardware de-

scription languages, and VLSI design tools and methods. From the early 1980's he is known as the founder of the German Multi University VLSI Design Project "E.I.S. Project" for innovating education at CS and EE departments in Germany. That's why Lynn Conway has called him "the German Carver Mead". He is the author and implementer of the early (mid 70ies) trailblazing hardware description language KARL. His book introducing this language in 1977 has become a best-seller.



**Dr. Allam Appa Rao**  
*Dean*  
*College of Engineering*  
*The Andhra University, India*

Dr. Allam Appa Rao is Dean of Engineering Faculty, Andhra University, Visakhapatnam, one of the top Universities in India. He has been a Professor from the year 1985. He started his career in Computing field in the year 1969. He had his early training in computers from the Indian Statistical Institute, Calcutta, and ICTP, Trieste, Italy. He obtained his Ph.D. degree for his work in Studies on Computer Performance Evaluation. He has devoted himself to promoting computerization in India in all his endeavors for the last three decades. Dr. Allam Appa Rao has published extensively and received numerous awards for his research work and teaching.



**Dr. David V. Gibson**  
*Associate Director, IC<sup>2</sup>*  
*Institute, The University*  
*of Texas at Austin, TX*

David V. Gibson is Associate Director and The Nadya Kozmetsky Scott Centennial Fellow, at the IC<sup>2</sup> (Innovation, Creativity, Capital) Institute, The University of Texas at Austin. In 1983, he received a Ph.D. in Sociology from Stanford University with a concentration in organizational behavior and communication theory. His dissertation was on the management of innovation. During 1999-2000, Dr. Gibson was a Fulbright Scholar at Instituto Superior Tecnico, Lisbon, Portugal. Dr. Gibson's teaching, research, and publications focus on the application of technology/knowledge; cross-cultural communications and management, and the growth and impact of technopoles or regional technology centers worldwide. Dr. Gibson is Co-Chair of the International Conference on Technology Policy and Innovation and Program Vice-Chairman for the World Conference on Integrated Design and Process Technology. He has written scholarly articles, books, and book chapters, the most recent publication being *Learning and Knowledge For the Network Society* (Purdue University Press, 2005). Recent technical reports include "Cameron County, Texas and Matamoros, Mexico At The Crossroads: Assets and Challenges for Accelerated Regional and Binational Development" (2003) and "Toward Sustainable Global Security: The International Science and Technology Center, Moscow, Russia" (2003). He is a consultant to businesses and governments worldwide and has made professional and keynote presentations in the U.S., Europe, South America, and Asia. His papers have been translated into Mandarin, Japanese, Korean, Russian, Spanish, Italian, French, German, Finnish, and Portuguese.



**Dr. Pamela Eibeck**  
*Dean, College of Engineering*  
*Texas Tech University, TX*

Dr. Pamela Eibeck is Dean of Engineering at Texas Tech University. She arrived at Texas Tech in May of 2004 with administrative experience at Northern Arizona University that included having served as Chair of Mechanical Engineering, Director of Honors, Interim Dean and Vice-Provost for Undergraduate Studies.

Prior to her appointment at NAU, Dr. Eibeck was a tenured faculty member in Mechanical Engineering at the University of California at Berkeley (1985 – 1995). During her tenure, she developed an experimental program in fluid dynamics and convective heat transfer with a focus on vortical flows and electronics cooling. Applications included heat-shield tile design for the space shuttle; cooling of disk drives and compact integrated chip systems; and high performance turbines.

Dr. Eibeck graduated from Stanford University with a Bachelor of Science degree (1979), Master of Science (1981) and doctorate degree (1986) in Mechanical Engineering. Over the course of her career, Dr. Eibeck's research interests have been in the fields of heat transfer and advancing innovation in engineering education.

Dr. Eibeck has been the recipient of numerous awards, including the 1999 Boeing Outstanding Educator Award, the 1996 Distinguished Engineering Educator Award from the Society of Women Engineers and the 1988 Ralph R. Teetor Educational Award from the Society of Automotive Engineers.



**Dr. Mehmet Aksit**  
*Head*  
*Software Engineering Chair*  
*University of Twente*  
*The Netherlands*

Dr. Mehmet Aksit Holds an M.Sc. degree from the Eindhoven University of Technology and a Ph.D. degree from the University of Twente. Currently, he is working as a full professor at the Department of Computer Science, University of Twente and affiliated with the institute Centre for Telematics and Information Technology. He is the head of the Software Engineering chair and the leader of the Twente Research and Education on Software Engineering (TRESE) Group.

He has served as the program co-chair of several conferences and symposia, such as ECOOP'97, SACT'00, HQSAD'00, NoD'02 and AOSD2003. He has been serving as a program committee member of various international conferences and he was the tutorial chair of the ECOOP'92 conference and the organizing chair of the AOSD'02 conference. Since 1988, he has been serving as a reviewer of various European projects.

He has given more than 100 international and in-company courses and conference tutorials mainly in the Netherlands, but also in Canada, Denmark, France, Germany, Hungary, Ireland, Portugal, Spain, Sweden, Switzerland and the United States.

Mehmet Aksit has been the user and developer of object-oriented systems since 1983. Later, in the end of 80's, he started to work on firstly, software composition techniques and later, on aspect-



oriented software engineering. He has been involved in designing architectures for several large industrial projects. He and the TRESE group were among the pioneers of the following techniques.

Since 1988, the TRESE group has developed, probably the first aspect-oriented language called Sina, which has later evolved into Composition Filters. The group has organized the first Aspect-Oriented Software Development conference (AOSD2002) and Aksit is the co-editor of the first aspect-oriented journal. Since beginning of the 90's, the TRESE group has developed synthesis based architecture/software design, which adopts controlled problem solving techniques in designing software architectures. Since 1994, the TRESE group has applied, probably for the first time, fuzzy-logic based techniques to modeling software design heuristics and processes. Since 1997, the TRESE group has been developing new design formalisms called Design Algebra for managing large design spaces.



**Bruce R. Korf, MD., Ph.D.**  
*Wayne H. and Sara Crews  
Finley Professor  
Chairman, Department  
of Genetics  
University of Alabama at  
Birmingham, AL*

Dr. Korf received his M.D. degree from Cornell University Medical College and his Ph.D. degree in genetics and cell biology from Rockefeller University. He then completed training in pediatrics, pediatric neurology, and genetics at Children's Hospital, Boston. He served as clinical director in the Division of Genetics at Children's Hospital from 1986 to 1999 and as the medical director of the Harvard-Partners Center for Genetics and Genomics from 1999-2002. Currently he is the Wayne H. and Sara Crews Finley Professor of Genetics and Chairman, Department of Genetics at University of Alabama at Birmingham. In his previous appointment at Harvard Medical School, he served as co-director of the course Genetics, Developmental and Reproductive Biology, which is taught to all first year students at Harvard Medical School. His book, based on this course, *Human Genetics: A Problem-Based Approach*, published by Blackwell Science is currently in its second edition, and has been translated into Italian and Korean. He is also co-editor of the fourth edition of Emery and Rimoin's *Principles and Practice of Medical Genetics*. Dr. Korf is past president of the Association of Professors of Human and Medical Genetics, and has completed a term as Vice-President for Clinical Genetics of the American College of Medical Genetics. He also serves as a member of the Liaison Committee on Medical Education, which accredits U.S. and Canadian medical education programs. His research interests focus on the natural history and treatment of neurofibromatosis type 1. He is also active in the integration of genetics and genomics into routine medical practice, including education of clinicians and development of informatics approaches.



**Dr. Robert E. Holmes**  
*Dean of School of Business  
and Graduate School of  
Management  
University of Alabama  
at Birmingham, AL*

Robert E. Holmes is Dean of the School of Business and Graduate School of Management at the University of Alabama at Birmingham. The UAB business school serves some 2000 graduate and

undergraduate students with the faculty and staff of 95 faculty and staff. All accounting and business programs are accredited by AACSB International.

The school has achieved national visibility for a number of its programs including accounting and industrial distribution. The UAB Graduate School of Management has recently implemented an MBA for Scientists Program and a Certificate in Technology Entrepreneurship in collaboration with UAB's world class medical and research programs and these two initiatives have gained national recognition.

Prior to coming to UAB in January, 1999, Holmes served as Dean of the F. W. Olin Graduate School of Business at Babson College, Wellesley, MA 1995-1998. During his tenure, Babson's MBA program in entrepreneurial studies was ranked #1 in surveys published in U. S. News and World Report and Success Magazine and the evening MBA program was ranked 9<sup>th</sup> in the U.S. The graduate school received a \$30 million gift from the F. W. Olin Foundation, built a new building, and was recognized internationally for its innovative full-time MBA program and its international programs.

Holmes was Dean of the College of Business at James Madison University in Virginia from 1983-1995. Highlights of his 12 years there include: AACSB accreditation of all accounting and business programs; creation of the first school of accounting in Virginia, establishment of a Center for Entrepreneurship; design and construction of a new business building; successful completion of a major capital campaign; and the initiation of a number of curricula and organizational innovations.

He is the co-author of four management textbooks, numerous articles, cases, and papers, and has served as a consultant to a number of major firms including IBM, Sprint, Texas Instruments, VICAT, et. al. He has served on the boards of several business firms and not-for-profit organizations as well as on more than 40 peer review teams (chairing over 25 visits) for the AACSB. He served on the Board of Directors of the Birmingham Area Chamber of Commerce, and currently serves on the boards of the Rotary Club of Birmingham, Entrepreneurial Center, TechBirmingham, the Alabama Economic Education Association, and Medical Properties Trust, listed on the NYSE.



**Dr. Herbert Weber**  
*Director of the  
Fraunhofer Institute for Software  
and Systems Engineering, Technical  
University of Berlin, Germany*

Dr. Herbert Weber is a chair professor of computer science at the Technical University of Berlin and Director of the Fraunhofer Institute for Software and Systems Engineering with locations in Berlin and Dortmund, Germany. In this capacity he acts as a mediator between research organizations and the industry in government sponsored activities, in industry initiatives, in domestic and foreign projects and in the conceptualization of technology development and transfer policies. He initiated and supported numerous technology transfer initiatives and projects on behalf of and with many industrial companies in Europe and the USA and acted as the chief information and communication technology advisor to the state government of North-Rhine Westfalia in the Federal Republic of Germany. He received a Diploma-Degree and a PhD in Numerical Mathematics and Applied Physics from the Technical University of Berlin in 1967 and 1970, respectively. Since then he has been affiliated with the Technical University of Berlin as an Assistant Professor, as a Visiting Assistant Professor with the Massachusetts Institute of Technology (M.I.T.) in Cambridge, Massachusetts, with IBM Research in San Jose, with the Hahn- Meitner-Institut in Berlin, as a full professor with the University of Bremen in 1980 and with the University of Dortmund in 1984. In 1978 he taught as a Distin-



guished Visitor at the University of Texas at Austin and in 1979 as a Visiting Professor at INRIA/France. During his career he conducted research on Communication based Systems, Data Management Systems, Software Engineering and Software Development Environments. In his various affiliations in the US and in Europe he has been working mostly in software engineering, on the development of data base systems and distributed data management systems. He has published a large number of papers on his work and presented his research results in many lectures in Europe, the United States and Japan.

He has actively participated in the organization of a large number of international conferences, was General Chairman of the "4. International Conference on Very Large Data Bases" (1978) and General Chairman of the "7. International Conference on Distributed Computing Systems" (1987). He was a member of the editorial board for the IEEE-CS "Transaction on Software Engineering", IEEE "Transactions on Data and Knowledge Engineering" and IEEE "Computer" and served the IEEE Computer Society as a member of the governing board. He carries the most prestigious IEEE-Computer Society's Golden Core Member award.



**Dr. Eugene Santos**  
*Professor*  
*Thayer School of Engineering at*  
*Dartmouth, MA*

Dr. Eugene Santos, Jr. is a Professor in the Thayer School of Engineering at Dartmouth. He has over 120 refereed technical publications in journals and conferences. Dr. Santos has served on many major conference program committees from intelligent agents to evolutionary computing. He is also an associate editor for the IEEE Transactions on Systems, Man, and Cybernetics: Part B and the International Journal on Image and Graphics. In addition to his expertise in intent inferencing and probabilistic reasoning, Dr. Santos' research interest include adversarial decision modeling, deception detection, multi-agent systems, intelligent information systems, decision support, user modeling, human-computer interaction, intelligent user interfaces, knowledge engineering, verification and validation of knowledge-based systems, and natural language processing.



**Dr. Shuji Hashimoto**  
*Director of the Humanoid*  
*Robotics Institute*  
*Waseda University, Japan*

Shuji Hashimoto received the B.S., M.S. and Dr.Eng. degrees in Applied Physics from Waseda University, Tokyo, Japan, in 1970, 1973 and 1977, respectively. He is currently a Professor in the Department of Applied Physics, School of Science and Engineering, Waseda University. Since 2000, he has been the Director of the Humanoid Robotics Institute, Waseda University.

From 1979 to 1991, he was with the Faculty of Science, Toho University, Funabashi. He was a Vice President of International Computer Music Association from 1997 until 2001. From 2003-2004, he served as chair of the promotion committee, IEEE Tokyo Section. He is the author of over 200 technical publications, proceedings, editorials and books. He is a reviewer for many journals and conferences on computer music, computer vision, robotics and neural computing. His research interests are in human communication and Kansei information processing including image processing, music systems, neural computing and humanoid robotics.



**Dr. Ruimin Shen**  
*Dean, Network Education College*  
*of Shanghai Jiaotong University,*  
*China*

Dr. Ruimin Shen is a full professor of Shanghai Jiaotong University. He is the director of the Shanghai E-Learning Lab and currently serves as the dean of the Network Education College of Shanghai Jiaotong University. He is also a member of the Ministry of Education's Expert Committee on Long-Distance Education. He acquired a Bachelor of Science at the Department of Computer Science of Tsinghua University in 1988 and received his master degree in Computer Science of Tsinghua University in 1991. During 1997 to 1998, he was a visiting Professor in Waseda University. In 1991 he joined the Department of Computer Sciences of Shanghai Jiaotong University.

His research interests include E-Learning Technologies, Knowledge Discovery and Data Mining, Data Encoding and Information Retrieval. He received research from various prestigious funding institutions in China and computer industry world-wide including: the National Natural Science Foundation of China (Key 863 Program Projects and National Key Science and Technology Projects), the Intel Research Fund, AT&T Educational Fund and IBM-SUR Research Fund, and the Shanghai Municipal Education Commission and Science and Technology Commission. Due to his outstanding research contributions, he received the China National Education Production 1st Class Award in 2005, the Shanghai Science and the Technology Advanced 1st Class Award, the Shanghai Yucai Award and the Shanghai Education Production 1st Class Award in 2004, and the Education Ministry Science and Technology Advanced 2nd Class Award in 2003.



**Dr. Fun-Den Wang**  
*Chairman & President*  
*China Open Resources for*  
*Education (CORE)*

Professor Fun-Den Wang currently serves as Chairman and President of China Open Resources for Education (CORE). CORE is a non-profit organization created in the fall of 2003 in collaboration with MIT and other universities to enhance the quality of education in China through coordinating and utilizing Open CourseWare among 70 universities in China, which have an enrollment of 5 million students, and offering Chinese OCW for sharing globally. Prof. Wang graduated from the University of Illinois with MS and PhD degrees in Mineral Engineering in 1960 and 1965. From 1965-72 he worked for the US Department of the Interior as a researcher and supervisor in the Bureau of Mines. He subsequently joined the faculty of the Colorado School of Mines in Golden, Colorado as an associate professor. While at the School of Mines, he was active in research and industrial activities and was founding director of the Earth Mechanics Institute and the Mineral Research Institute. He was a founder of the US and International Water Jet Association, serving as president and chairman of the board for many years. He retired from the School of Mines as Professor Emeritus in 1994. Since his retirement, Prof. Wang founded IET Foundation which, while working with 26 elite universities in China, has awarded over 4000 scholarships to undergraduate students, graduate students, and junior faculty. He holds honorary professorships at numerous universities and has been the recipient of many awards.



**Dr. Bosheng Zhou**  
 Founder and honorary Dean of  
 Software Engineering Institute  
 of Beijing University of  
 Aeronautics and Astrophysics  
 (BUAA)

Dr. Bosheng Zhou, is the founder and honorary Dean of Software Engineering Institute of Beijing University of Aeronautics and Astrophysics (BUAA). He was the Chief scientist and project manager of China's first national software project on Integrated Software Engineering Environment, which pioneered China's software industry. He was also the first Chief CMMI instructor in China.

He is Chairman and founder of Cyber Keji Park Inc. in USA and Beijing Cyber Science and Technology Inc. in China—a partnership with Software Engineering Institute of Carnegie Mellon University (CMU/SEI) to provide the process improvement services in China.

Prof. Zhou has received numerous awards including First Class Awards in Science and Technology in China as well as Distinguished Contribution Award from Beijing Science and Technology Committee.. He has published more than 100 papers and translated more than 20 books on a variety of topics in software engineering and management.

## PLENARY SESSION SPEAKERS

### PLENARY SESSION-I

Monday, June 26, 2006 3:00 pm - 3:30 pm  
 Room: Grand Ballroom Salons A-D



**Dr. Nam P. Suh**  
*The Ralph E. & Eloise F.*  
*Cross Professor*  
*Director, The Park Center*  
*for Complex Systems*  
*MIT, Cambridge, MA*

Dr. Nam P. Suh is the Ralph E. & Eloise F. Cross Professor and the Head of the Department of Mechanical Engineering and the Director of the Manufacturing Institute at MIT.

He has been on the faculty of the Institute since 1970. During this period he was the Founding Director of the MIT Laboratory for Manufacturing and Productivity (1977-1984), which has become one of the largest and most active research centers of its kind in the world. He was also the Founder and Director of the MIT-Industry Polymer

Processing Program (1973-1984), Head of the Mechanics and Material Division of the Mechanical Engineering Department (1975-1977), and a member of the Engineering Council of MIT (1980-1984 and 1991-to date).

In October 1984, Professor Suh took a leave of absence from MIT to accept a Presidential Appointment as the Assistant Director for Engineering of the National Science Foundation. President Ronald Reagan appointed him to this position and his appointment was confirmed by the U.S. Senate. During his tenure at NSF, he introduced a totally new organizational program structure for supporting engineering research in order to strengthen engineering education and research and "to insure that the United States will occupy a leadership position in engineering well into the 21<sup>st</sup> century." He returned to MIT in January 1988.

Dr. Suh has received many awards and honors. He received an honorary Doctor of Humane Letters degree from the University of Massachusetts-Lowell in 1988, and an honorary Doctor of Engineering degree from Worcester Polytechnic Institute in 1986. He also received the Gustus L. Larson Memorial Award (1976), the Blackall Award (1982), the 1993 Best Tribology Paper Award, and the William T. Ennor Manufacturing Technology Award (1993) from ASME; the F.W. Taylor Research Award (1986) of SME; an SPE Award (1981); Federal (NSF) Engineer of the Year Award (1987) from NSPE; the American Society for Engineering Education Centennial Medalion (1993); and the National Science Foundation's Distinguished Service Award (1988). Listed in Who's Who in America and Who's Who in Technology, he is a Fellow of ASME as well. He is a member of Pi Tau Sigma, Sigma Xi, Phi Kappa Phi, ASEE, SPE, and AAAS. He also was elected as a Foreign member of the Royal Swedish Academy of Engineering Science (IVA) in 1988 and a member of Collège International pour l'Etude Scientifique des Techniques de Production Mécanique (CIRP) in 1978. In 1994, he was selected as the Most Outstanding Compatriot Scholar in the World by KBS.

He is the author of more than 250 papers and five books, holds forty patents, and edited several books. Among the books he has authored are, *Elements of the Mechanical Behavior of Solids* (McGraw-Hill), *Tribophysics* (Prentice-Hall, translated into Chinese), *The Principles of Design* (Oxford University Press, translated into Japanese), *The Delamination Theory of Wear* (Elsevier), and *Manufacturing Engineering* (to be published by McGraw-Hill).

Professor Suh is the Co-Editor-in-Chief of the International Journal, Robotics and Computer-Integrated Manufacturing, and also serves on several editorial boards. He is also a Series Editor for Oxford University Press.

He is the Founder and Chairman of the Board of Axiomatics Corporation, a member of the board of directors of Silicon Valley Group, a Technical Advisor to Daewoo Group, and a consultant of the Lawrence Livermore National Laboratory. He is also the founder of Suh & Associates, Inc. He was a founder of Sutek Corporation. He has consulted extensively for governments, the World Bank, the United Nations, and industrial firms throughout the world. He has consulted on various technical matters, the development of economic policies (he was the principal architect of the Five Year Economic Plan of the Republic of Korea for 1980-1985), and the creation of new products and processes. He was a member of the Visiting Committee for the National Institute of Standards and Technology (a statutory committee), the Advisory Council of the Texas A&M University Department of Mechanical Engineering, the Science Board of MacroChem Corporation, and the Advisory Board to KAITECH. He served on the IR&D Review Panel of the Lawrence Livermore National Laboratory, the Science and Technology Review Board of the Idaho National Engineering Laboratory, and the Technical Advisory Committee of Alcan Aluminum Corporation, several NRC and NAE committees, and the ASME Productivity Committee (Chairman).

Professor Suh was educated at Buckingham, Browne and Nichols School (1955), MIT (S.B., 1959, and S.M., 1961) and Carnegie-Mellon University (Ph.D., 1964).

**HONORING OUTGOING SDPS PRESIDENT  
PROFESSOR BERND KRAEMER**

**DINNER SPEAKER**

**Dr. Herbert Weber**  
Director

**Fraunhofer Institute for Software and  
Systems Engineering, Technical University of  
Berlin, Germany**

**Monday, June 26, 2006 7:00 pm - 9:30 pm**  
**Room: Grand Ballroom Salons E-H**



**Dr. Herbert Weber**  
*Director of the  
Fraunhofer Institute for Software  
and Systems Engineering, Technical  
University of Berlin, Germany*

Dr. Herbert Weber is a chair professor of computer science at the Technical University of Berlin and Director of the Fraunhofer Institute for Software and Systems Engineering with locations in Berlin and Dortmund, Germany. In this capacity he acts as a mediator between research organizations and the industry in government sponsored activities, in industry initiatives, in domestic and foreign projects and in the conceptualization of technology development and transfer policies. He initiated and supported numerous technology transfer initiatives and projects on behalf of and with many industrial companies in Europe and the USA and acted as the chief information and communication technology advisor to the state government of North-Rhine Westfalia in the Federal Republic of Germany. He received a Diploma-Degree and a PhD in Numerical Mathematics and Applied Physics from the Technical University of Berlin in 1967 and 1970, respectively. Since then he has been affiliated with the Technical University of Berlin as an Assistant Professor, as a Visiting Assistant Professor with the Massachusetts Institute of Technology (M.I.T.) in Cambridge, Massachusetts, with IBM Research in San Jose, with the Hahn- Meitner-Institut in Berlin, as a full professor with the University of Bremen in 1980 and with the University of Dortmund in 1984. In 1978 he taught as a Distinguished Visitor at the University of Texas at Austin and in 1979 as a Visiting Professor at INRIA/France. During his career he conducted research on Communication based Systems, Data Management Systems, Software Engineering and Software Development Environments. In his various affiliations in the US and in Europe he has been working mostly in software engineering, on the development of data base systems and distributed data management systems. He has published a large number of papers on his work and presented his research results in many lectures in Europe, the United States and Japan.

He has actively participated in the organization of a large number of international conferences, was General Chairman of the "4. International Conference on Very Large Data Bases" (1978) and General Chairman of the "7. International Conference on Distributed Computing Systems" (1987). He was a member of the editorial board for the IEEE-CS "Transaction on Software Engineering", IEEE "Transactions on Data and Knowledge Engineering" and IEEE "Computer" and served the IEEE Computer Society as a member of the governing board. He carries the most prestigious IEEE- Computer Society's Golden Core Member award.

**LUNCHEON SPEAKER**

**Dr. Pamela Eibeck**  
Dean

**College of Engineering  
Texas Tech University**

**Tuesday, June 27, 2006 12:00 pm - 1:00 pm**  
**Room: Grand Ballroom Salons D&E**



**Dr. Pamela Eibeck**  
*Dean, College of Engineering  
Texas Tech University, TX*

Dr. Pamela Eibeck is Dean of Engineering at Texas Tech University. She arrived at Texas Tech in May of 2004 with administrative experience at Northern Arizona University that included having served as Chair of Mechanical Engineering, Director of Honors, Interim Dean and Vice-Provost for Undergraduate Studies.

Prior to her appointment at NAU, Dr. Eibeck was a tenured faculty member in Mechanical Engineering at the University of California at Berkeley (1985 – 1995). During her tenure she developed an experimental program in fluid dynamics and convective heat transfer with a focus on vortical flows and electronics cooling. Applications included heat-shield tile design for the space shuttle; cooling of disk drives and compact integrated chip systems; and high performance turbines.

Dr. Eibeck graduated from Stanford University with a Bachelor of Science degree (1979), Master of Science (1981) and doctorate degree (1986) in Mechanical Engineering. Over the course of her career, Dr. Eibeck's research interests have been in the fields of heat transfer and advancing innovation in engineering education.

Dr. Eibeck has been the recipient of numerous awards, including the 1999 Boeing Outstanding Educator Award, the 1996 Distinguished Engineering Educator Award from the Society of Women Engineers and the 1988 Ralph R. Teetor Educational Award from the Society of Automotive Engineers.

**PLENARY SESSION-II**

**Tuesday, June 27, 2006 1:00 pm - 1:30 pm**  
**Room: Grand Ballroom Salons A-D**



**Dr. George Friedman**  
*Associate Director  
Systems Architecture &  
Engineering, Viterbi  
School of Engineering,  
University of Southern  
California, CA*

George Friedman is the Associate Director of the Systems Architecture and Engineering Program at the Viterbi School of Engineering, where he is also the focal point for research in systems engineering. Over 400 graduate students have taken his classes — which he developed — and he sits on 10 PhD committees.



He is a founder, fellow, and past president of INCOSE, and is a member of the editorial board of Systems Engineering, INCOSE's peer-reviewed journal. He is also a fellow, former member of the board of governors, and vice president publications for the Aerospace and Electronic Systems Society of the IEEE.

Previously, he has had over 45 years of industrial experience, primarily in the aerospace industry, culminating in his retirement from Northrop as their corporate vice president of engineering and technology. During this time he also served on scientific advisory boards for DOD, NASA, CIA, and NATO.

He received a BS in Mechanical Engineering from UC Berkeley, and an MS and PhD from UCLA.

## PLENARY SESSION-III

**Tuesday, June 27, 2006 1:30 pm - 2:00 pm**  
**Room: Grand Ballroom Salons A-D**



**Bob Block**  
*Chairman*  
*LandMark Entertainment and*  
*3-D Business Tools, CA*

Bob Block is a serial entrepreneur. He has a long and successful career in the computer software, communication and entertainment industries including pioneering roles in commercial and pay television and the cellular telephone industry. Bob is widely known for his innovative work. He is the inventor and patent owner of more than 150 issued US and International patents and has many pending patents. His patents relate to: Enterprise Management Systems, Information Labeling, Signal Control, Terrestrial and Satellite Distribution Systems, Real-Time Subscriber Billing Systems, Pay-Per-View and Parental Control, Speech Education, Exercise Equipment and Novelty items. Block's inventions are licensed to most of the major consumer electronic manufacturers and have influenced entertainment, sports and information and education services worldwide.

As the regional manager for North American Airlines, in the early 1950s Bob helped to launch the coach airline business. From the mid 1950s to the early 1970s he ran an advertising agency bearing his name. The agency grew to be the 55<sup>th</sup> largest agency in the world. From 1970 to 1980 Bob had a leadership role in founding the Pay-TV industry. He founded Selec-TV, the first Pay-per-view television network in the world. In the early 1980s he participated in launching the cellular telephone business by organizing license applications which resulted in licenses for more than 70 cellular operating companies. In the late 1980s and through the 1990s Bob saw an opportunity to bring modern communications to emerging nations. His companies launched Netia, the largest privately owned telephone company in Poland, Cable Plus, the largest cable television company in the Czech Republic and he played a founder's role in creating Canal Plus, the largest pay television service in Europe. In the 1990s he began to consolidate his business experience into an Enterprise Management System and formed 3D Business Tools which he still heads. Because of his growing interest in China, Bob founded American Entertainment International to bring Live entertainment such as concerts, Broadway shows and sports events to China. He also founded Markland Entertainment, and acquired Landmark Entertainment Group, the world leader in location based entertainment. Landmark is doing extensive work in China. Bob is the first American to have a seat on the Shanghai United Asset & Equity Exchange.

## PLENARY SESSION-IV

**Tuesday, June 27, 2006 2:00 pm - 2:30 pm**  
**Room: Grand Ballroom Salons A-D**



### Engineering the Future

**Dr. Belle W.Y. Wei**  
*Dean, College of Engineering*  
*San Jose State University, CA*

Dr. Belle W. Y. Wei was appointed dean of the College of Engineering at San José State University in May of 2002. Under her leadership the College has undertaken a number of initiatives designed to enhance the students' learning experience. Unique among them is the Global Technology Initiative (GTI), created to raise awareness among students of the importance of preparing for an engineering career in a global engineering environment. In 2004 and 2005, the GTI Scholars Program made it possible for some 50 of the College's top students to participate in a 100% sponsor-supported two-week Asia Study Tour. Also under her leadership, the College has achieved a 133% increase in externally-funded grants and contract awards funding a wide array of faculty research.

In addition to her duties as dean, Dr. Wei is active in professional and community organizations. She is a member of the Public Policy Committee of the Engineering Deans Council and has served on the program committees of many international technical conferences and National Science Foundation panels. She currently serves on the boards of Monte Jade and Vision New America.

Dr. Wei has been the recipient of a number of awards in recognition of her contributions to the community, the region and the nation. In 2004 she received a Special Congressional Recognition in Recognition of Outstanding and Invaluable Service to the Community, and the Public Service Award from the Committee of 100, Northern California. In 2003, she received a U.S. Congressional Commendation. Prior to her appointment as dean, Wei chaired SJSU's electrical engineering department from 1998-2002. Dean Wei holds a Ph.D. in electrical engineering from UC-Berkeley and an M.S. degree in engineering from Harvard University. Her specialty area is VLSI circuit theory and special architectures.

## PLENARY SESSION-V

**Tuesday, June 27, 2006 2:30 pm - 3:00 pm**  
**Room: Grand Ballroom Salons A-D**



**Dr. Fuad Gattaz Sobrinho**  
*President of Ambiencia*  
*Information Systems, Ltd,*  
*Campinas, Brazil*

### Experience of Brazilian Initiative Among Government, Private Industry, Academy and Practitioners of Creating and Establishing a Virtual Transdisciplinary Global Web Research Network

Dr. Fuad G. Sobrinho is the President of Ambiencia Information Systems, Ltd, Campinas, Brazil, which develops Galaxy 4.0, a cross-platform development environment with editing tools, interface con-

struction tools and runtime classes, that is used world-wide to deploy business solutions ranging from stand-alone, departmental applications to sophisticated, distributed applications designed to address enterprise-wide problems [www.ambiencia.com for more information]. Dr. Sobrinho received his PhD in Computer Science and Management Science from the University of Maryland, College Park, Maryland in 1984. Dr. Sobrinho is the founder and has been served the Secretary Executive of Board of Directors of International Institute on Systems Integration – IISis, Campinas, Sao Paulo, Brazil in 1993-2002, a Founder Member of Society for Design and Process Science-SDPS since 1995, the Founder – Chief of the Núcleo Tecnológico para Informática Agropecuária-NTIA – of Empresa Brasileira de Pesquisa Agropecuária – EMBRAPA, Campinas, SP in 1985 – 1990, the Executive Director of the Empresa Brasileira de Pesquisa Agropecuária – EMBRAPA, Brasília, DF in 1990-1992, and many other organizations. Dr. Sobrinho has also served as a member of Excellence Committee of the Integrated Software Engineering Environment of the National Institute of Standards on Technology, Department of Commerce, Gaithersburg, MD in 1990-1992, and a member of Product Software Quality Assurance Group, AT&T from 1989, a member of SIGMA Project, Information-Technology Promotion Agency, IPA, Tokyo, Japan in 1985-1990, a Senior Consultant of EUREKA Software Factory. University of Dortmund, Germany and Software Productivity Consortium, Herndon, VA in 1985-1990; and a member of the International Committee of the Initiative of Software of the London School of Economics, London, Great Britain in 1985. Dr. Sobrinho has been appointed as an Assistant Professor at the Departamento de Informática, Pontifícia Universidade Católica – PUC, Rio de Janeiro, RJ in 1974-1975, a Visiting Professor at the Departamento de Estatística, Universidade de Brasília – UnB, Brasília, DF in 1976-1978, a Research Professor of Computer Science at New Jersey Institute of Technology, Newark, NJ in 1989 and Distinguished Research Professor of Computer Science at the University of Dortmund, Germany in 1990. Dr. Sobrinho was an editor of the Journal of Systems Integration, Kluwer and of the IEEE in 1990. Dr. Fuad Sobrinho also published numerous research results in many conference proceedings, journals and book chapters. However, most of his later work have been in the multi-disciplined area: process science and technology. Currently, Dr. Sobrinho is the founding-developer of the Laboratory for the Process Production Processes, Lab.

## PLENARY SESSION-VI

Wednesday, June 28, 2006 8:00 am - 8:30 am

Room: Grand Ballroom Salons A-D



**Bruce Roberts**

*President and CEO*

*Cubic Defense Systems, Inc., CA*

Mr. Roberts joined Cubic in May 1997 as the VP and Director of the MILES 2000 Program, developing a system and the laser based products for force-on-force training for the US Army and Marine Corps. In September he was named President and CEO of Cubic Defense Systems. In this position, he is responsible for the air combat training systems, ground combat training systems, MILES 2000, data links and avionics business units and the functional organizations which support the business. In 2002, with the con-

solidation of the CDS, along with the four other Cubic Defense Companies, into the Cubic Defense Applications Group, Mr. Roberts was appointed the Sr. VP of Technical Operations, responsible for advanced technology, engineering, manufacturing, procurement, quality within the San Diego operations and the “incubator” established to pursue new business opportunities, specifically optical communications and homeland security. In 2004, Mr. Roberts assumed his current position for CDA, effectively serving as the Chief Technology officer.

## PLENARY SESSION-VII

Wednesday, June 28, 2006 8:30 am - 9:00 am

Room: Grand Ballroom Salons A-D



**Dr. J.K. Aggarwal**

*Cullen Professor*

*The University of Texas at*

*Austin, TX*

J.K. Aggarwal has served on the faculty of The University of Texas at Austin College of Engineering in the Department of Electrical and Computer Engineering since 1964. He is currently one of the Cullen Professors of Electrical and Computer Engineering and the Director of the Computer and Vision Research Center. His research interests include computer vision and pattern recognition.

A fellow of IEEE (1976) and IAPR (1998), Prof. Aggarwal received the Senior Research Award of the American Society of Engineering Education in 1992. In 1996 he received the IEEE Computer Society Technical Achievement Award for “pioneering contributions towards establishing fundamentals of structure extraction and computational motion from image sequences.” He is the author or editor of 7 books and 52 book chapters; author of over 200 journal papers, as well as numerous proceeding papers and technical reports.

He has served as the Chairman of the IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence (1987-1989); Director of the NATO Advanced Research Workshop on Multisensor Fusion for Computer Vision, Grenoble, France (1989); Chairman of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (1993), and the President of the International Association for Pattern Recognition (1992-1994). He is a life fellow of IEEE and Golden Core Member of IEEE Computer Society.

At the University of Texas at Austin, Prof. Aggarwal's has focused his teaching and research on signal processing and pattern recognition. In recognition of his teaching accomplishments, Prof. Aggarwal has received numerous College of Engineering Meritorious Faculty Awards, the 1986 Billy and Claude Hocott Distinguished Centennial Engineering Research Award, and was named Outstanding Graduate Teacher in 1992. Professor Aggarwal has graduated 38 Ph.D. and 53 Masters students and served on numerous other graduate student committees. Many of his students have received best paper awards and have gone on to successful in careers in industry, academia and national research agencies.

Professor Aggarwal's current research interests focus upon the development and application of computer vision techniques for the automatic recognition of human actions and interactions in video sequences, and on the use of computer vision techniques such as perceptual grouping for the automatic recognition and retrieval of images from databases.

## PLENARY SESSION-VIII

Wednesday, June 28, 2006 9:00 am - 9:30 am  
Room: Grand Ballroom Salons A-D



**Dr. Raymond A. Paul**  
*Technical Director for  
Command and Control (C2) Policy  
Undersecretary of Defense*

**Adaptive Service-Oriented  
Application Architecture and  
System Engineering**

As a professional electronics and software engineer, system developer, tester, and evaluator for the past 26 years, Dr. Paul has held many positions in the field of software engineering. Currently, Dr. Paul serves as the technical director for command and control (C2) Policy. In this position, Dr. Paul manages network enabled command and control systems engineering development for objective, quantitative and qualitative measurements. Dr. Paul's current research focus is on a dynamic integrated theoretic approach to C2 networks from multiple levels from dyadic to global. Understanding multiple concepts, theories at multiple levels along with attributes of nodes and the links may provide insight to better understand C2 organizational networks that are created, maintained, and reconstituted. Lastly, Dr Paul is developing a methodology for dynamic environment decision making pertaining to real time data from sensors, software/systems and related processes and the risk identification and management framework that includes internal and external variabilities.

Dr. Paul holds a doctorate in software engineering and is an active "Fellow" member of the IEEE Computer Society and SDPS. He has published chapter in 4 books and more than 84 articles on software engineering in various technical journals and symposia proceedings, primarily under DoD and IEEE sponsorship. He has authored chapters in 4 technical books concerning software engineering.

## PLENARY SESSION-IX

Wednesday, June 28, 2006 1:30 pm - 2:00 pm  
Room: Grand Ballroom Salons A-D



**Dr. Jean-Marc Gregori**  
*President of the  
Federation Interuniversity  
(FIREEP), France*

Dr Gregori possesses more than 20 years executive and management operations, engineering, and teaching experience in the fields of medicine, high tech (with emphasis on composite material process), and international politic strategy. As an academic and business leader, Dr. Gregori has worked extensively on fundamental research, application and commercialization in the areas of Medicine and advanced technology. In addition, he has worked closely with the UN and other international organizations providing his knowledge and expertise assisting in the setting of Intellectual Property Transfer policy.

In addition to his multiplicity of backgrounds in mathematics, biology, physical and chemistry sciences, engineering (Composite, mechanical and electronic), Dr. Gregori travels extensively, as head of his multi-national companies — Founder and original manager of the Innovation Forum (IDEA), president of the Federation Inter-University FIREEP, President of GBMO, among many others. He is truly a 21st century global citizen who transcends disciplines and cultures.

## TUTORIAL ON Trustworthy Computing: A Data-Analytical and Index-Based Engineering Approach

Friday June 30, 2006 8:00 am - 10:30 am  
Room: Rancho Santa Fe Ballroom Salon 3

**Tutorial Organizer:** Mehmet Sahinoglu, Eminent Scholar, Chair-Professor, Computer Science Department, Troy University, Montgomery Campus, Montgomery, AL

This book-tutorial on Trustworthy Computing was written for students and practitioners to recognize the data-analytical aspects of Security and Reliability, and Maintainability modeling towards measuring software and hardware quality, i.e. Trustworthiness, to finally establish metrics or indexes to quantify the common enemy- the RISK, not to solely qualify the imminent danger in conventional standards of good, medium, or bad.

- 1) Study Chapter 1 on Security modeling to assess the risk or lack of security, to obtain a residual risk measure after the countermeasure action is applied against the vulnerability-threat scenario due to lack of CINAPEA: "Confidentiality, Integrity, Non-repudiation, Authentication, Privacy, Encryption, Anonymity." This measure of an authorized action of breach is needed to compute Dependability, once the Reliability measure due to chance is estimated.
- 2) In Chapter 2, use the appropriate Reliability growth models for the usually clustered data (effort-based) to forecast the number of residual or remaining failures in a given list of candidate software packages.
- 3) Chapter 3 compares the forecast accuracy of methods used in Ch.2 to choose the significantly better software.
- 4) Chapter 4 studies an alternative cost-efficient testing device to assess the reliability of a product before release.
- 5) Chapter 5 offers an analytical math-statistical model to compute the availability measure for a component and some easy-to-tackle parallel-series systems, which are repairable.
- 6) Chapter 6 however calculates in a vast variety of complex embedded systems, by using RBD techniques, the network availability indexes by employing estimates obtained in Ch. 5.
- 7) Chapter 7 is a simulation alternative to all above if analytical methods are not mathematically feasible or available.
- 8) Chapter 8 (Supplement) enters the world of Reliability to introduce basic notions and a review of Software Reliability.

**CONFERENCE DINNER**  
**Co-sponsored by IOS Press BV,**  
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# IDPT SPECIAL FEATURES

## WORKSHOP ON APPLYING TRANSDISCIPLINARY CONCEPTS IN SOFTWARE ENGINEERING (ATCISE)

Tuesday June 27, 2006 8:30 am - 12:00 pm

### Workshop on Applying Transdisciplinary Concepts in Software Engineering Tuesday June 27, 2006 8:30 am - 12:00 pm Room: Grand Ballroom Salons A-D



#### WORKSHOP KEYNOTE SPEAKER

*C.V. Ramamoorthy  
University of California, Berkeley, CA*

**Workshop Organizers:** Mehmet Aksit and Bedir Tekinerdogan, University of Twente, The Netherlands; M.M. Tanik, University of Alabama at Birmingham, AL.

Software engineering (SE) can be considered a problem solving process in which the business requirements can be considered as the cause of the problem and the software artifacts correspond to the solution. Throughout the history of SE, several problems have been tackled and solutions have been proposed to cope with the complexity of continuously growing software. Advances have been made in various SE fields such as software analysis and design methodology, software process improvement, requirements engineering, modeling throughout the software lifecycle, programming languages, SE principles, formal methods and tooling. On hindsight, the generalization and specialization of concepts, and techniques in SE seem to have been mainly triggered by experiences, trial and error, and the successes and failures in the SE domain itself.

In fact, problem solving is a ubiquitous approach in science and various engineering disciplines. One can observe that the existing problem solving approaches in these different domains have matured over centuries and are successfully applied. Despite the existing problem solving concepts in various disciplines, very few explicit or visible efforts seem to have been taken to identify and integrate these mature and useful concepts in software engineering.

This workshop focuses on fertilization of problem concepts in software engineering through identification and description of the mature problem solving concepts in other disciplines. With this workshop, we aim to come up with a general framework for enhancing software engineering using the transdisciplinary concepts. The workshop will include presentations by speakers from disciplines other than software engineering. Thus providing broader vision for software engineering as well as engineering, science, design, in problem solving.

#### Workshop Format

The workshop will be highly interactive and will include a number of selected paper presentations and invited talks. The presentations will be focused on concepts that have been selected by the program committee. Workshop discussions will be organized as follows: First, the process for identifying important Transdisciplinary concepts will be defined. Typically, this process will be based on a problem solving process. Secondly, the process will be applied to analyze important and mature disciplines outside of SE. Thirdly, the concepts will be probed in the SE context. Finally, a list of enhancements to SE will be proposed based on the evaluations in the previous processes. The more concrete aim of the workshop is to come up with a paper that summarizes the workshop and provides a vision for SE to include the mature transdisciplinary concepts.

#### Supporters of Workshop:

Dr. Mehmet Aksit University of Twente; Dr. M.M. Tanik, University of Alabama; Dr. Bedir Tekinerdogan, University of Twente. Dr. C.V. Ramamoorthy, Berkeley, CA; Dr. Raymond T. Yeh, Enterprise Clinic, Inc.; Dr. Bernd Kraemer, FernUniversitaet, Hagen, Germany; Franz Kurfess, California Polytechnic State University; Dr. Peter A. Ng, University of Texas-Pan American; Dr. Fuad G. Sobrinho, International Institute of Systems Integration, Brazil; Dr. Tad Gonsalves, Sophia University, Japan; Dr. Kiyoshi Itoh, Sophia University, Japan; Dr. Mehmet Sahinoglu, Troy University; Dr. Sunil Das, Troy University; Dr. Cengiz Erbas, ASELSAN Microelectronics, Turkey; Dr. S. Ekwaro-Osire, Texas Tech University; Dr. Atila Ertas, Dept. of Mechanical Engineering, Texas Tech University; Mrs. Jill Gemmill, Dept. of Academic Computing, Information Technology, UAB; Dr. Murat N. Tanju, Dept. of Accounting and Information Systems, UAB; Ali Dogru, Middle east Technical University, Turkey; Daniela Marghitu, Auburn University, Auburn, Alabama

# IDPT SPECIAL FEATURES

WORKSHOP DEDICATED TO THE MEMORY OF  
ILYA PRIGOGINE, REGENTAL PROFESSOR OF PHYSICS AND CHEMICAL ENGINEERING AND  
DIRECTOR OF THE ILYA PRIGOGINE CENTER, THE UNIVERSITY OF TEXAS AT AUSTIN, TX

Tuesday June 27, 2006 3:30 am - 6:30 pm

**Workshop on System Biology:  
How can Transdisciplinary approach integrate Biology with Engineering?**  
Tuesday June 27, 2006 3:30 pm - 6:30 pm  
Room: Grand Ballroom Salons A-D



*Ilya Prigogine,  
the winner of the 1977 Nobel Prize*

**Workshop Organizers:** M.M. Tanik, and John Hartman, University of Alabama at Birmingham, Birmingham, AL.; Y. Tuncer, METU, Turkey; A. Ertas and T. Maxwell, Texas Tech University, Lubbock, Texas.

In June, 2005, we dedicated our first Biology related workshop to Eminent Harvard biologist Ernst Mayr. We had discussed topics associated with the last book of Dr. Mayr *What Makes Biology Unique?*, in which he states: "Biology actually consists of two rather different fields, mechanistic (functional) biology and historical biology." He further clarifies historical biology as evolutionary biology and identifies the scientific methods used in both fields. He cautions against confusing the reductionist thinking with analysis. He recognizes the lack of "programmatic" aspect in the inanimate world. It is abundantly clear that genetics provides a "programmatic" dimension to biology which is missing in classical physics. However, considerations in information theory and computing provide a "programmatic" aspect to physics and chemistry.

This year, we are dedicating our workshop to the memory of Ilya Prigogine, who passed away in 2003, Regental Professor of Physics and Chemical Engineering, and Director of the Ilya Prigogine Center for Studies in Statistical Mechanics and Complex Systems at The University of Texas at Austin.

Ilya Prigogine was awarded the Nobel Prize in chemistry in 1977 for his contributions to nonequilibrium thermodynamics, particularly the theory of dissipative structures. He was born in Moscow, Russia on January 25, 1917. He obtained both his undergraduate and graduate education in chemistry at the Universite Libre de Bruxelles. He was Regental Professor and Ashbel Smith Professor of Physics and Chemical Engineering at the University of Texas at Austin. In 1967, he founded the Center for Statistical Mechanics,

later renamed the Ilya Prigogine Center for Studies in Statistical Mechanics and Complex Systems. Since 1959, he was the director of the International Solvay Institutes in Brussels, Belgium. In 1989, Prigogine was awarded the title of Viscount by the King of Belgium. He was a member of 64 national and professional organizations, among which are the National Academy of Sciences and the American Academy of Arts and Sciences. The most recent of Prigogine's many international activities were Special Advisor to the European Community in Brussels, Belgium and Honorary Member of the World Commission of Culture and Development of UNESCO, chaired by Perez de Cuellar.

The main theme of the scientific work of Ilya Prigogine was for a better understanding of the role of time in the physical sciences and in biology. He contributed significantly to the understanding of irreversible processes, particularly in systems far from equilibrium. The results of his work on dissipative structures have stimulated many scientists throughout the world and may have profound consequences for our understanding of biological systems. Prigogine received numerous national awards and prizes, including the Golden Medal of the Swante Arrhenius, Swedish Academy; Rumford Gold Medal, Royal Society of London; the Descartes Medal, Paris; Commander of the Legion of Honor, France; Imperial Order of the Rising Sun (Gold & Silver Medals), Japan; Medaille d'Or, France; Russian International Scientific Award, First "N. N. Bogolyubov Prize," Joint Institute for Nuclear Research, Dubna; Medal of the President of the Italian Senate, awarded by Pio Manzù International Research Center, Italy; Norbert Wiener Gold Medal of Ukbridge; Medal of Member of the European Academy of Yuste; Silver Medal of V.I. Vernadsky, the Academy of Natural Sciences of Russia and Commander of the World Order "Science. Culture. Education." European Academy of Information, 2002. He received 53 honorary degrees.

He greatly enhanced our understanding of irreversible processes in systems that are far from equilibrium, particularly in chemical and biological systems. Prigogine was particularly interested in explaining how ordered structures - biological systems, for example - can develop from disorder. These systems display order in both

time and space which are stable to perturbations-robust. Prigogine called these systems dissipative systems, because they are formed and maintained by the dissipative processes which take place due to the exchange of energy between the system and its environment, and because they disappear if that exchange ceases. They may be said to live in symbiosis with their environment. Prigogine's methods to study the stability of the dissipative structures to perturbations are still of great general interest. They facilitate the study of a large variety of problems, such as traffic, the stability of insect communities, the development of biological structures, and the growth of cancer cells.

Larry R. Faulkner, President of UT, said about Ilya that "Irreversible systems have an arrow of time which appears to be incompatible with Newtonian and quantum dynamics, which are reversible theories. This incompatibility of the reversible foundations of science with the irreversible behavior that is actually observed in chemical, hydrodynamic, and biological systems remains one of the great mysteries of science."

Ilya's approach was to study the "complexity" in general. The study of "complexity" intrigued Prigogine; and he and Dr. Kozmetsky had many long discussions on this matter. George always referred us to Ilya's work on complexity citing his books such as *Kinetic Theory of Vehicular Traffic* with R. Herman, and *Exploring Complexity* with G. Nicolis. As an IC<sup>2</sup> fellow, Ilya was a very humble and generous person. We will miss him as much as we miss George.

In our "NSF-FIBR: Integrative Studies of Symmetry-Breaking Events In Cells: An Entropic Investigation Based On the Effects of Gravity and Light" proposal we have identified the value of these lines of

thinking and proposed the application of information theory to study these complex systems.

Both George and Ilya would be thrilled to attend this workshop and practically dominate the thought processes. Guess what; even if they are not here their fundamental ideas will still dominate the intellectual direction of the workshop.

### Supporters of Workshop:

Dr. David B. Allison, Dept. of Biostatistics, Section on Statistical Genetics, UAB; Dr. Stanley J. Roux, Section of Molecular Cell and Developmental Biology, The University of Texas at Austin; Dr. Gypsy Abbott, School of Education, UAB; Dr. J. Barry Andrews, Materials Science and Engineering, UAB; Dr. Stephen Barnes, Nutrient-Gene Interaction Center, UAB; Dr. Xiangqin Cui, Section on Statistical Genetics, UAB; Dr. Atila Ertas, Dept. of Mechanical Engineering, Texas Tech University; Jill Gemmill, Dept. of Academic Computing, Information Technology, UAB; Dr. Gary J. Grimes, Electrical and Computer Engineering, UAB; Dr. John L. Hartman, Dept. of Genetics, UAB; Dr. Ann E. Loraine, Section on Statistical Genetics, UAB; Dr. D. Marshall Porterfield, Agricultural & Biological Engineering, Purdue University; Dr. David L. Shealy, Dept. of Physics, UAB; Dr. Volker Sick, Mechanical Engineering, The University of Michigan; Dr. Murat N. Tanju, Dept. of Accounting and Information Systems, UAB; Dr. Tarynn M. Witten, Center for the Study of Biological Complexity, Virginia Commonwealth University

## WORKSHOP KEYNOTE SPEAKER



Professor Günter Valet  
*Max-Planck-Institut für Biochemie*  
*Martinsried, Germany*

### Predictive medicine by cytomics: a top-down strategy to resolve the molecular biocomplexity of the human organism

Tuesday June 27, 2006 3:30 pm - 4:15 pm  
Room: Grand Ballroom Salons A-D

Professor Günter Valet studied theoretical physics (1961-62) and medicine (1962-68) in Munich, Freiburg and Montpellier, graduated as MD with subsequent clinical formation and research work at the Max-Planck-Institut für Biochemie (MPIB) in Munich (1968-71). A research fellowship concerning the biochemistry of the human complement system at Scripps Clinic & Research Foundation, La Jolla, CA (1972-73) was followed by habilitation at the Ludwig-Maximilian-University, Munich in 1974. Appointments as professor for experimental medicine in 1981, head of the independent Mildred-Scheel Laboratory for cancer cell research at MPIB, Martinsried (1981-1989) and as head of the cell biochemistry group since 1989 provided the possibility for medicine directed transdisciplinary molecular cytometry research work.

### Speakers:

J. Hartman, Genetics  
Y. Tuncer, Decomposition techniques and biology  
Dan Moore and Robert Kristofco, Transdisciplinary Medical Education

The development of sensitive fluorescence cell function assays and of multiparameter flow cytometers opened the way for the analysis of single cell functions as fast indicators for alterations of disease activity in patients (1981-95). The establishment of algorithms data pattern analysis ("data sieving") for cytometric and other multiparameter data (1987) represents the basis of the predictive medicine by cytomics concept (2001). It permits therapy dependent disease course predictions for individual patients, thus representing a new potential for the improvement of medical services in everyday medicine. It seems also suitable for the discovery of new drug targets. The proposal of a human cytome project (2004) has the potential for the establishment of a generalized molecular cell and disease classification system since cells represent the elementary function units of organisms with diseases emerging as consequence of molecular alterations in cells and cell systems (cytomes).

Refer to (<http://www.biochem.mpg.de/valet/cellbio.html#tabcont>) for Professor Günter Valet's numerous scientific articles.



# IDPT SPECIAL FEATURES

## WORKSHOP ON TECHNOLOGY COMMERCIALIZATION -- A TRANSDISCIPLINARY APPROACH WEDNESDAY, JUNE 28, 2006 2:00 PM - 3:30 PM Room: Rancho Santa Fe Ballroom Salon 3

**Workshop Organizer:** Michael F. Smith, M.F. Smith, L.L.C.,  
Califon, NJ

**Summary:** This session, will detail the issues and considerations involved in commercializing engineering, science or technology research. The session includes ways to generate marketable outcomes from research activities or findings and will overview the process, forces, factors and considerations in, and the added value of a transdisciplinary approach to develop a marketable product and bring this "transdisciplinary vision" and venture to 'market'.

**Audience:** this session will be equally useful to any organization, institution, researchers, principal investigators, academics and individuals involved in research and development of new concepts with an entrepreneurial spirit, having an interest in learning how to bring these 'research-products' to market. This session should enable researchers to inventory and review their current and past work to possibly uncover hidden opportunities, and to approach future endeavors in a way that might create future possibilities.

**Format:** This session will be mostly presentation supported with PowerPoint overheads, some audience interaction, with Q&A at end – 2hours required 10 minute break in middle.

### TOPICAL OUTLINE

- ❖ Introduction – of the speaker & the topic
- ❖ What is commercialization? – What is your goal?
  - Selling the idea?
  - Building a company?
  - Seeking funds further development or alternative research?
  - Capitalize on old, orphaned or derivative opportunities?
    - Inventory your intellectual property
  - Creating partnering opportunities?
- ❖ What makes a good target idea?
  - Early-stage products or late-stage research
    - Market needs driven
    - Concept or knowledge?
  - Characteristics of marketable ideas
  - Concepts that don't generate interest
  - Tuning your concept into a venture or tuning your research to create ventures
- ❖ Stages or levels of Development and its impact on value
  - Conceptual – just an idea
  - Mock-Up or planned approach– this is how it should/will work
  - Proof-of-Concept / Prototyped – here's one to demonstrate to show it works / now let's make it easy to sell
  - Limited Production – does the 'shrink-wrap' and install really work?
  - Full Production – Manufacturer and distribution alliances - We're in the Money...
  - What's next? Cash-out, re-investment, diversification – now you're a real businessman?
- ❖ Transdisciplinary partnering for synergy
  - Turning an item or a product, into a total solution – a need for partners from other disciplines, while retaining control
  - Recognize your limitations – know your needs
  - Recognizing IP ownership – ghosts in a closet
- ❖ Funding requirements: sources, use and cost
  - Consider resource requirements for the next-stage of development
  - What will you need to get to the next level
  - Considerations in getting or accepting help
  - Protecting the idea
  - Defendability of the concept
- ❖ Current preferences in the Venture Market
  - Products over services or concepts
    - Financial Plan: Source and use of funds, cash-flow, investment ROI/exit and contingency
  - Developing audience targeted collateral – providing the right information, using the right vocabulary without delay
- ❖ Where am I now?
  - What is my stage of development?
  - IP Ownership – can you prove "clear title"
  - Demonstrate marketability?
  - Targeted collateral?
  - Don't Really Know! – seeking advisory support
- ❖ What should I do next?
  - Get balanced – First things first - avoid endless revisions or doing what is fun or easy to do, recognize there is a sequence and sometimes a recursion
  - Build a simple, reasonable plan from where you are, to where you want to go – consider the gaps and the enablers
  - Find, approach and engaging the enabling resources
  - Monitor and checkpoint your progress
  - Watch the market for threats and opportunities – the need for a balanced view
- ❖ Conclusion
  - Why / when do some ventures succeed
  - Why / when do some ventures fail
  - Needing and seeking process or content advice
  - Key formula:
    - $Worth = \lim_{t \rightarrow 0} [F(K, M, D, V, t)]$
- ❖ Questions, contact information, announcements and session critique

# TECHNICAL PAPER SESSIONS

**SESSION-1 Room:** Rancho Santa Fe Ballroom  
Salons 1&2

*Monday, June 26, 4:00 pm - 6:00 pm*

## GENERAL DESIGN-I

**Session Organizer and Chair:** I.ESAT, Department of Mechanical Engineering, Brunel University, Uxbridge, UK

**A Investigation Into Inverse Dynamics in Cycling Motion** by I. ESAT, N. ABULKHAIR, Department of Mechanical Engineering, Brunel University West London, Uxbridge, London, UK

**Multivariate Analysis of Variance for Significance of Material Property in Cervical Spine Response** by T.-H. JANG and S. EKWARO-OSIRE, Texas Tech University, Lubbock, TX

**A Preliminary Approach In Studying The Uncertainty In Biological Systems, Using Mathematical And Computational Methods** by N.ZAVAREI\_MIRNEZAMI, D.E.M TAYLOR, I.ESAT, Department of Mechanical Engineering, Brunel University, Uxbridge, UK

**Transdisciplinary Research for Quantitative SENSE Spectroscopy of Gliomas at 3T** by E. Ozturk<sup>1,2</sup>, A. P. Chen<sup>1,2</sup>, J. C. Crane<sup>2</sup>, D. Xu<sup>2</sup>, E. Han<sup>3</sup>, D. B. Vigneron<sup>1,2</sup>, S. Cha<sup>2,4</sup>, S. M. Chang<sup>4</sup>, S. J. Nelson<sup>1,2</sup> <sup>1</sup> UCSF/UCB Joint Graduate Group in Bioengineering Department of Radiology<sup>2</sup>, and Department of Neurological Surgery<sup>4</sup>, University of California, San Francisco, CA <sup>3</sup>GE Healthcare, ASL West, Palo Alto, CA

**State Of Art In Cartilage Modelling** by M. MS. ALTAF, I. ESAT, School of Engineering, Brunel University, Uxbridge, UK

**A New Medical Device To Regulate Spinal Kinematics** by I. ESAT, Y. SOLANKE, M. M. ALTAF, School of Engineering, Brunel University, Uxbridge, UK

**SESSION-2 Room:** Rancho Santa Fe Ballroom  
Salons 3

*Monday, June 26, 4:00 pm - 6:00 pm*

## FORMAL METHODS FOR INDUSTRIAL CRITICAL SYSTEMS

**Session Organizer and Chair:** T. MARGARIA, University of Potsdam, Germany

**Statecharts composition to model topologically distributed applications** by S. GNESI, ISTI-CNR, A. FANTECHI, Università degli Studi di Firenze, M. BANCÌ, ISTI-CNR, Italy

**Applying Unifying Theories of Programming to Real-Time Programming** by A. ARENAS, J. BICARREGUI, CCLRC Rutherford Appleton Laboratory, UK

**On the evolution of Reliability Methods for Critical Software** by M. DEL MAR GALLARDO, J. MARTÍNEZ, P. MERINO, E. PIMENTEL, University of Malaga, Spain

**The FMICS View on the Verified Software Repository** by A. ARENAS, CCLRC/RAL, J. BICARREGUI, CCLRC/RAL, T. MARGARIA, University of Potsdam, Germany

**SESSION-3 Room:** Rancho Santa Fe Ballroom  
Salons 4

*Monday, June 26, 4:00 pm - 6:00 pm*

## ADVANCING KNOWLEDGE AND DECISION MAKING VIA HUMAN AND TECHNOLOGY SYSTEMS ACROSS COMPLEX DOMAINS

**Session Organizer and Chair:** B. SORENSEN, US Air Force Research Laboratory, USA

**Decision Making Factors In Air Force Flight Mishaps** by R. NULLMEYER, Air Force Research Laboratory, Mesa, AZ

**Requirements For Developing Systems That Support Work And Learning In Complex Domains** by K. NEVILLE, CHI Systems, Inc., Orlando, Florida, S. SCHREMMER, CHI Systems, Inc., Fort Washington

**Applying Complex Reasoning Tools To Mission Effectiveness** by A. BEVILACQUA, Bevilacqua Research Corporation, H. B. SORENSEN, Warfighter Training Research Division U.S. Air Force Research Laboratory, D. J. SKIPPER, Bevilacqua Research Corporation

**Telemetry Commander** by M. PALUSZEK, L. SWETHARANYAN, W. TURNER, J. MUELLER, D. WILSON, Princeton Satellite Systems Princeton, NJ

**Emergency Medical Technician Practice** by W. J. WALSH, T. W. FULBRIGHT, JXT Applications, Inc., Beavercreek, Ohio

**Distributive Medical Curricula Architecture** by E. ALLELY, J. RIESS, American Medical Diagnostics, H. B. SORENSEN, US Air Force Research Laboratory

**SESSION-4 Room:** Rancho Santa Fe Ballroom  
Salons 1&2

*Wednesday, June 28, 10:30 am - 12:30 pm*

## GENERAL DESIGN-II

**Session Organizer and Chair:** I.I. ESAT, Department of Mechanical Engineering, Brunel University, Uxbridge, UK

**A Novel Approach To Obtaining A Real Time Control Force Strategy by Using Genetic Algorithm and Convolution Integral** by I.I. ESAT, M. SAUD, Department of Mechanical Engineering, Brunel University West London, Uxbridge, UK

**An Inverse Problem Methodology Appraisal of the Elastic Properties of Bimaterials** by J. F. Cárdenas-García and G. G. Weber, Department of Engineering, The University of Texas at Brownsville, Brownsville, TX, S. Ekwaro-Osire, Department of Mechanical Engineering, Texas Tech University, Lubbock, TX

**Obtaining Damping Matrix in A Mass-Spring-Dashpot System Using Genetic Algorithm** by I.I. ESAT\*, E. DJAKAB\*, C. MARES\*, N. OZADA\*, \* School of Engineering Brunel University, Uxbridge, Middlesex, UK, \*\* Laboratory of the Built Environment of the Faculty of Civil Engineering of University of, Science and Technology Houari Boumediene (Usthb) of Algiers

**Evaluation Of Project Appraisal Decision Making : A Critical Review - The Case Of Kuwait Fund for Arab Economic Development** by M. ALENEZI, I. ESAT, School of Engineering and Design, Brunel University, Uxbridge, UK

**SESSION-5 Room:** Rancho Santa Fe Ballroom  
Salons 3

*Wednesday, June 28, 10:30 am - 12:30 pm*

## ENTERPRISE ARCHITECTING AND PROCESS SUPPORT

**Session Organizer and Chair:** A. MOINI, Intelligent Systems Technology, Inc., Santa Monica, CA

**Towards An Executable Specification-Driven Toolset For Analyzing DoDAF-Compliant Architectures** by A.M. MADNI, A. MOINI, C. C. MADNI, Intelligent Systems Technology, Inc., Santa Monica, CA

**Building a Data-Centric Organization** by M.ABAI, Seena Technologies, Santa Monica, CA

**Designing Processes to Minimize Human behavior variability during process Execution** by D. F. ZARNOW, Raytheon Space & Airborne Systems, El Segundo, CA, and A.M. MADNI, Intelligent Systems Technology, Inc., Santa Monica, CA

**Process Architecture: The Key to Systematic Process Tailoring**

**and Reuse on Systems Engineering Projects** by J. MANARY, Science Applications International Corp, San Diego, CA, and A.M. MADNI, Intelligent Systems Technology, Inc., Santa Monica, CA

**Strategic Planning For Enterprise-Wide Online Learning** by E.A.SAWYER, Intelligent Systems Technology, Inc., Santa Monica, CA

**Risk Management: The Practitioner's Perspective** by M. Stelling, Raytheon Space and Airborne Systems, El Segundo, CA and A.M. Madni, Intelligent Systems Technology, Inc., Santa Monica, CA

**SESSION-6 Room:** Rancho Santa Fe Ballroom  
Salons 4

*Wednesday, June 28, 10:30 am - 12:30 pm*

**SPECIAL SESSION IN MEMORY OF MRS. TAZU YAMAGUCHI AND DR. YUKIO MIZUNO**

**Session Organizer and Chair:** P.P. C-y SHEU, University of California, Irvine, CA; H. YAMAGUCHI, Chuo University, Japan

**Realization of a Ubiquitous Network on the JINI Network Infrastructure** by S. WATANABE, Sojo University, Japan

**Conceptual Modeling of Voting Schemes** by H. YAMAGUCHI, Chuo University, Japan

**Toyota Production System - A Case Study** by V. K. KHANNA, IMT Ghaziabad, India and R. SHANKAR, IIT Delhi, India

**Analyzing Chemical Compounds with ChemObjects** by X. ZHANG and P. C-y SHEU, University of California, Irvine, USA  
D. HECHT, Southwest College, Chula Vista, CA

**SESSION-7 Room:** Rancho Santa Fe Ballroom  
Salons 1&2

*Wednesday, June 28, 4:00 pm - 6:00 pm*

**HUMAN ACTIVITY SYSTEMS**

**Session Organizer and Chair:** J. RING, Gilbert, AZ

**Design Science Aids the "Fuzzy Front End" of Systems Projects** by J. RING, Gilbert, AZ

**Virtual Model of Product and Process for the Construction Industry Using Distributed Computing Technologies** by T. BLACKMON, Mountain View, CA

**Process Improvement with Human Performance Technology** by T.J. ESQUE, LLC, Tempe, AZ

**Human Centering In DoD Acquisition** by S.V. DEAL, Deal Corp. Yellow Spring, OH

**Simulation of an Intelligent System Engineering** by J.R. CLYMER, Applied Research Center for Systems Science, CSU, Fullerton, CA

**The Lida Architecture: Adding New Modes of Learning to an Intelligent, Autonomous, Software Agent** by S. FRANKLIN, F.G. PATTERSON, Institute for Intelligent Systems, The University of Memphis, Memphis, TN

**SESSION-8 Room:** Rancho Santa Fe Ballroom  
Salons 3

*Wednesday, June 28, 4:00 pm - 6:00 pm*

**PROCESS DESIGN, PROCESSES SCIENCE, AND TECHNOLOGY**

**Session Organizer and Chair:** F. G. SOBRINHO, International Institute of Systems Integration, Paraná Brasil and P. NG, Department of Computer Science University of Texas-Pan American, Edinburg, TX

**A Framework for Composing Systems Based on Concurrent Regular Expressions** by Y. TANG, School of Computer Sciences and Engineering, Fairleigh Dickinson University, NJ; X. FAN,

Department of Computer Science, College of Staten Island, NY and P. A. NG, Department of Computer Science, University of Texas-Pan American, Edinburg, TX

**Primary Agent: An Extension to Mobile IP** by S. Y. SUNG, Department of Computer Science, South Texas College, McAllen, TX; P. SUN, Department of Computer Science, National University of Singapore, Singapore, and P. NG, Department of Computer Science, University of Texas-Pan American, Edinburg, TX

**A Dynamic Relationship Framework for Innovation: Implications for the Brazilian Aerospace Strategy Operations** by C. C. GATTAZ BUENO, J. A. NETO, M. CATHARINO, \*K. TECHIMA, \*\* R. CORAL, Department of Production Engineering, University of São Paulo, Brazil, \*Brazilian Aerospace Agency, Brasília, Brazil, \*\*Celler, Brasília, Brazil

**A Developing Country's Information and Communication Technology Infrastructure in Perspective: A Vision for the 21<sup>st</sup> Century** by F. S. MHLANGA, Department of Computer Science, Faulkner University, Montgomery, AL

**Integration of Structured and Unstructured Text Data in a Clinical Information System** by C-S D. WEI, Department of Computer Information Systems, BMCC, City University of New York, NY; S. Y. SUNG, Department of Computer Science, South Texas College, McAllen, TX; S. J-G. DOONG, Department of Information Management, China Institute of Technology, Taiwan, and P. A. NG, Department of Computer Science, University of Texas-Pan American, Edinburg, TX

**Dynamic Folder Reorganization in Supporting Efficient and Effective Document Retrieval** by X. FAN, Department of Computer Science, College of Staten Island, City University of New York, NY; Y. TANG, School of Computer Sciences and Engineering, Fairleigh Dickinson University, NJ; F. SHENG, Software House International, Inc, NJ and P. A. NG, Department of Computer Science, University of Texas-Pan American, Edinburg, TX

**SESSION-9 Room:** Rancho Santa Fe Ballroom  
Salons 4

*Wednesday, June 28, 4:00 pm - 6:00 pm*

**SOFTWARE RELIABILITY, PRODUCT DESIGN, PROCESS ENHANCEMENT AND FAULT TOLERANCE**

**Session Organizer and Chair:** S. R. DAS, and M. SAHINOGLU, Troy University, Montgomery, AL

**Modeling and Performance Analysis of Guaranteed Communications in Network on Chip Systems** by Q. -A. ZENG, S. HARIHARAN, W. -B. JONE, and S. R. DAS, University of Cincinnati, and University of Ottawa, Canada

**Testability Analysis of Delay-Insensitive Nanoscale Circuits on Cellular Arrays** by J. DI and P. K. LALA, University of Arkansas, and Texas A&M University, TX

**The Need for a Revolutionary New Approach in Software Hardware Co-Design and a High Performance Test Bed** by S. GHOSH, University of Texas, TX

**An Effective Defence Mechanism Against Massively Distributed DoS Attacks** by Y. CHEN, S. DAS, P. DHAR, A. E. SADDIK, and A. NAYAK, University of Ottawa, Canada

**A New Graph Theory Technique to Designing Zero-Aliasing Space Compressors** by S. R. DAS, A. HOSSAIN, E. M. PETRIU, M. H. ASSAF, M. SAHINOGLU, W. -B. JONE and S. BISWAS, University of Ottawa, Canada, Troy University, USA, University of Cincinnati, and Georgia Southern University, GA

**Partial Matching Technique in a Mixed Mode BIST Environment** by T. REUNGPEERAKUL, D. KAY, and S. MOURAD, Electrical Engineering Department, Santa Clara University, Santa Clara, CA. Cisco Systems, Inc., San Jose, CA



**SESSION-10 Room:** Rancho Santa Fe Ballroom  
Salons 1&2

*Thursday, June 29, 8:30 am - 10:00 am*

#### GENERAL DESIGN-III

**Session Organizer and Chair:** Y. ZENG Concordia Institute for Information Systems Engineering, Concordia University, Montreal, Canada

**Environment-Based Design: Concept Generation** by Y. ZENG, B. YAN, Concordia Institute for Information Systems Engineering Concordia University, Montreal, Canada

**BI: A Data Integration Perspective** by X. ZHANG, Faculty of Information Management, Wuhan University, Wuhan, Hubei, P. R. China

**Robust Statistical Quality Improvement for Soybean Machines** by J. XIAO, S. LI, L. YAN, A. B. HAMZA, Y. ZENG, Institute for Information Systems Engineering Concordia University, Canada

**An Integrated Design of Flexure Hinges And Topology Optimization For Monolithic Compliant Mechanism** by C. J. SHIH, C. F. LIN, Department of Mechanical And Electro-Mechanical Engineering, Tamkang University, Taiwan

**SESSION-11 Room:** Rancho Santa Fe Ballroom  
Salons 3

*Thursday, June 29, 8:30 am - 10:00 am*

#### SOFTWARE & APPLICATION-I

**Session Organizer and Chair:** A. DOGRU, Middle East Technical Univ., Ankara, Turkey; R. S. SADASIVAM, Electrical and Computer Engineering Dept., Univ. of Alabama Birmingham, AL

**Retinex Filters and Their Effects on OCR Accuracy** by E. ÖNAL, Speechgear, Inc, Minnesota

**Human Resource Re-Allocation Based on Covariance Structure Analysis** by K. SHIRAKAWA, H. SAITO, K. YAMASHITA, H. HASHIURA, S. KOMIYA, Graduate School Of Engineering, Shibaura Institute of Technology, Japan

**The Impact of Sarbanes-Oxley Act on Business Process Design** by M. TANJU, L. FOLAMI, and P. MUSA, University of Alabama at Birmingham, School of Business, Birmingham, AL

**Risk Management of a Software Development Project: A Method for Identifying Project Risks With Kepnertregoe Program** by T. NAGASHIMA, K. NAKAMURA, T. IDO, M. NAKAMARU, \*R. YAEHASHI, S. KOMIYA, Graduate School of Engineering, Shibaura Institute of Technology, \*Toyota Technological Institute, Japan

**Integrating the Concept of Synthesis in the Software Architecture Design Process** by B. TEKINERDOGAN and M. AKSIT, Software Engineering, Dept. of Computer Science, University of Twente, The Netherlands

**SESSION-12 Room:** Rancho Santa Fe Ballroom  
Salons 4

*Thursday, June 29, 8:30 am - 10:00 am*

#### LEARNING & KNOWLEDGE

**Session Organizer and Chair:** F. KURFESS, Computer Science Department, California Polytechnic State University; L. JOLOLIAN, New Jersey City University, NJ

**We Envisage the Next Big Thing** by Z. AKTAS and S. CETIN, Computer Engineering, Cankaya University, Turkey

**Technical, Pedagogical, Cultural and Social Research Study of a Traditional and Distance Learning Information Technology Minor: An Auburn University Case Study** by D. MARGHITU, L. CHEN, \*J. BURKS, Department of Computer Science and Software Engineering, \*Department of Animal Sciences Cellular and Molecular Biosciences Program, Auburn University, Alabama

**Integration of Science, Technology, and Human Development** by M. M. NAINI, Universal Vision & Research, Delray Beach, Florida  
**Lojban and Ontologies: Fostering Understanding across Disciplines** by B. WIRICK, F. KURFESS, N. PHAN, Computer Science Department, California Polytechnic State University, CA

**An Integrated Environment for Transdisciplinary Teaching** by L. JOLOLIAN, New Jersey City University, NJ

**A Platform-Independent Web-Based Tutorial Suite with Adaptable Structure** by L-A. KOVÁCS, \*S-E. PLÁCINTAR, G. M. POP, Faculty of Business, \*Faculty of Economics and Business Administration, Babeş Bolyai University, Romania

**Pedagogical Enrichment of Information Objects** by Susanne Heyer Project CampusContent FernUniversität in Hagen 58084 Hagen, Germany

**SESSION-13 Room:** Rancho Santa Fe Ballroom  
Salons 1&2

*Thursday, June 29, 10:30 am - 12:30 pm*

#### WEB & INTERNET APPLICATIONS

**Session Organizer and Chair:** J. ALTMANN, College of Engineering Seoul National University Seoul, South Korea

**Economizing ISP Interconnections at IXP's** by J. ALTMANN<sup>1,2</sup>, D. GOEL<sup>1</sup> <sup>2</sup>Techno Economics & Policy Program, College of Engineering Seoul National University Seoul, South Korea, <sup>1</sup>School of Information Technology International University in Germany, Bruchsal, Germany

**Efficient Prepaid Charging for the 3GPP IP Multimedia Subsystem (IMS)** by P. Kurtansky<sup>1</sup>, P. Reichl<sup>2</sup>, J. Fabini<sup>3</sup>, T. Lovric<sup>4</sup>, B. Stiller<sup>1,5</sup>, <sup>1</sup>Computer Engineering and Networks Laboratory (TIK), ETH Zurich, 8092 Zurich, Switzerland, <sup>2</sup>Telecommunications Research Center (ftw.), Vienna, Austria, <sup>3</sup>Institute for Broadband Communications (IBK), University of Technology, Vienna, Austria, <sup>4</sup>Mobilkom Austria AG & Co. KG, Vienna, Austria, <sup>5</sup>Department of Informatics IFI, University of Zurich, Zurich, Switzerland

**A Semantic Web Status Model** by A.J. GERBER, A. BARNARD, A.J. VAN DER MERWE, School of Computing, Unisa, South Africa

**Leveraging Web Services For Software Cultivation Using the Artificial Intelligence Design Framework** by \*\*D. PRABHU, \*V. GURUPUR, U. J. TANIK, Department of Electrical and Computer Engineering, University of Alabama at Birmingham, \*\*Department of Information Science and Engineering SJCE, India

**SESSION-14 Room:** Rancho Santa Fe Ballroom  
Salons 3

*Thursday, June 29, 10:30 am - 12:30 pm*

#### SOFTWARE & APPLICATIONS-II

**Session Organizer and Chair:** S. C. SUH, Department of Computer Science, Texas A&M University – Commerce, Commerce, TX and V. SRIRAM, American Information Technology Corporation, Irving, TX

**A Comparison of Effectiveness between Job Analysis Chart and Activity Chart in Analyzing Office Work** by T. TATEMATSU, \*A. KOJIMA, T. KIGUCHI, \*\*H. TAKAHASHI, S. KOMIYA, Graduate School of Engineering, Shibaura Institute of Technology, \*NEC Soft, \*\*Fuji Electric Co., Ltd. advanced technology, Japan

**Intelligent Cooperative Answering For Embedded Systems** by S. C. SUH, \* V. C. SRIRAM, Department of Computer Science, Texas A&M University, TX, \*American Information Technology Corporation, Irving, TX

**Transaction Cost Economics Approach To Software Development and Acquisition** by B. CELIKKOL ERBAS, \*C. ERBAS, Department of Economics, Economics and Technology University, \*Aselsan Mgeo Group, Image Processing Department, Ankara, Turkey

**Architectural Models for the Artificial Intelligence Design Framework** by U. J. TANIK, G. J. GRIMES, Electrical and Computer Engineering Department, University of Alabama, Birmingham, AL

**SESSION-15 Room:** Rancho Santa Fe Ballroom  
Salons 4

*Thursday, June 29, 10:30 am - 12:30 pm*

#### **GENERAL DESIGN & PROCESS**

**Session Organizer and Chair:** B.HUA, College of Chemistry and Chemical Engineering South China University of Technology

**Failure Prediction of a Bimaterial Body under Tensile Loads** by M.P.H. KHANDAKER, S. EKWARO-OSIRE, and M. DHORJE, Texas Tech University, Lubbock, TX

**Flow Structure Modeling for Process Systems** by L. QIAN, \* B. HUA, College of Chemistry and Chemical Engineering, Henan University, \*The Key Lab of Enhanced Heat Transfer and Energy Conservation, Ministry of Education, South China University of Technology, China

**An Experience with Designing Processes** by A. MUNHOZ de ARGOLLO FERRÃO, Civil Engineer and Architect, State University of Campinas, Brazil.

**High Pressure Hydrogen Storage Tank: A Parametric Design Study** by I. CUMALIOGLU, Y. MA, A. ERTAS, and T. MAXWELL, Mechanical Engineering Department, Texas Tech University, TX

**State of The Art: Hydrogen Storage** by I. CUMALIOGLU, A. ERTAS, Y. MA, and T. MAXWELL, Mechanical Engineering Department, Texas Tech University, TX

**The Die & Mould Cycle Life System Based on Electronic Datum Mould Technology** by XIANG-WEN XIONG, B. L. WYNN, Zhongheng High-Tech Institute, Academy of High-New Technology, Sichuan University, P.R. China

**SESSION-16 Room:** Rancho Santa Fe Ballroom  
Salons 1&2

*Thursday, June 29, 1:30 pm - 3:30 pm*

#### **SERVICE MODELS & APPLICATIONS**

**Session Organizer and Chair:** D. E. RETZER, J. M. WALKER, Department of Electrical and Computer Engineering, University of Alabama at Birmingham, AL

**A Service-Oriented Approach for Intelligent Information Integration and Retrieval** by R. S. SADASIVAM, \*M. M. TANIK, R. KRISTOFKO, Division of Continuing Medical Education, \*Electrical and Computer Engineering Department, University of Alabama Birmingham, AL

**Intelligence Analysis Center - Command Console** by D. E. RETZER, J. M. WALKER, Department of Electrical and Computer Engineering, University of Alabama at Birmingham, AL

**Services-Oriented Enterprise Engineering Lifecycle** by D. E. RETZER, J. M. WALKER, Department of Electrical and Computer Engineering, University of Alabama at Birmingham, AL

**An Anytime Anywhere Approach For Computing All Pairs Shortest Path For Social Network Analysis** by E. E. SANTOS, L. PAN, D. ARENDT, H. XIA, M. PITTKIN, Department of Computer Science, Virginia Polytechnic Institute & State University, Virginia

**SESSION-17 Room:** Rancho Santa Fe Ballroom  
Salons 3

*Thursday, June 29, 1:30 pm - 3:30 pm*

#### **SYSTEMS & APPLICATIONS**

**Session Organizer and Chair:** V. SRIRAM, American Information Technology Corporation, Irving, TX and S. C. SUH, Dept. of Computer Science, Texas A&M University Commerce, Commerce, TX

**On The Nature of Formal System Decomposition Principles and their Potential Applications to the Basis of Carcinogenesis** by T.

TUNCER, Y. TUNCER, and M. M. TANIK, Electrical and Computer Engineering Department, University of Alabama, Birmingham, AL

**Analysis of Large Scale Component Based Systems** by S. C. THOMPSON and \*M. M. TANIK, Bellsouth Telecommunications, Georgia, \*Electrical and Computer Engineering Department University of Alabama at Birmingham

**Auction-Based Allocation of Distributed Resources In Real-Time** by J. M. HARMS, Raytheon Company, TX, D. TATE\*, and A. ERTAS\*, Raytheon Company, TX, \* Department of Mechanical Engineering, Texas Tech University, TX

**The System for Supporting Collaborative Analysis** by R. KAWABATA, Y. ISHIKAWA, K. MASUDA, and K. ITOH, Lab. Information and Systems Engineering, Sophia University, Tokyo, Japan

**SESSION-18 Room:** Rancho Santa Fe Ballroom  
Salons 4

*Thursday, June 29, 1:30 pm - 3:30 pm*

#### **MANAGEMENT & BUSINESS**

**Session Organizer and Chair:** M. HELLER, RWTH Aachen University, Department of Computer Science, GERMANY

**How to Process [Business] Processes** by O. TUFEKCI, S. CETIN, and I. ALTINTAS, Cybersoft Information Technologies, Middle East Technical University Technopolis, Turkey

**A Reference Methodology for the User-Centric Development of Business Process Applications** by M. UFLACKER, Hasso-Plattner-Institute for IT Systems Engineering, Germany

**A Management System Supporting Interorganizational Cooperative Development Processes in Chemical Engineering** by M. HELLER, R. WORZBERGER, RWTH Aachen University, Department of Computer Science, Germany

**An Intelligent Lab Information Management System Model** by G. SUNDAR, R. S. SADASIVAM, \*\*J. L. HARTMAN, and \*M. M. TANIK, Division of Continuing Medical Education, \*Department of Electrical and Computer Engineering, \*\*Department of Genetics, University of Alabama at Birmingham, AL

**SESSION-19 Room:** Rancho Santa Fe Ballroom  
Salons 1&2

*Thursday, June 29, 4:00 pm - 6:00 pm*

#### **SOFTWARE & APPLICATIONS-III**

**Session Organizer and Chair:** K. ITOH and T. GONSALVES, Information Systems Engineering Laboratory, Faculty of Science & Technology, Sophia University, Japan

**Simulated Annealing in the Optimization of Collaborative Systems Operation** by T. GONSALVES and K. ITOH, Information Systems Engineering Laboratory, Faculty of Science & Technology, Sophia University, Japan

**A Tabu Search Framework for Dynamic Combinatorial Optimization problems** by D. TAYLOR, B. WEBER, B. BOJDUJ, CDM Technologies, Inc. California, Department of Computer Science, California Polytechnic State University, CA

**A Group Decision Making Support System Based on Kepner - Tregoe Program: Proposals for Improving Decision Making Process and Implementation of the Support System** by T. IDO, \*R. YAEHASHI, K. NAKMURA, M. NAKAMARU, T. NAGASHIMA, and \*S. KOMIYA, Graduate School of Engineering, Shibaura, Japan

**Normalization within Class Libraries** by V. M. DEVAPPA, Sales Focus Solutions, CA

**Designing Interactive Hypermedia Collaboratively** by F. HANISCH, M. MUCKENHAUPT, \*F. KURFESS, and W. STRÄßER, WSI/GRIS University of Tübingen, Germany, \*California Polytechnic State University, Computer Science Department, Institute of Technology, \*Toyota Technological Institute

**Weaving Distributed Application Traffic Flows for Performance Management** by Yusuf Ozturk and Edward LaFon, San Diego State University, San Diego, CA

**SESSION-20 Room:** Rancho Santa Fe Ballroom  
Salons 3

Thursday, June 29, 4:00 pm - 6:00 pm

#### **AXIOMATIC DESIGN**

**Session Organizer and Chair:** D. TATE, Texas Tech University, Mechanical Eng., Lubbock, TX

**Measurement of Component Congruity for Composition Based on Axiomatic Design** by C. TOGAY, \*O. AKTUNC, \*M. M. TANIK, and A. H. DOGRU, Middle East Technical University, Department of Computer Engineering, Turkey, \*University of Alabama at Birmingham, Department of Electrical and Computer Engineering

**The Improvement of Progressing Cavity Pump based on AD and TRIZ** by J. P. ZHANG and J. ZHANG Ruihong Tan Runhua School of Mechanical Engineering, Hebei University of Technology, China

**Component Oriented Simulation Development with Axiomatic Design** by C. TOGAY, A. H. DOGRU, \*U. J. TANIK, and \*G. J. GRIMES, Computer Engineering Department, Middle East Technical University, Turkey, \* Electrical and Computer Engineering Department, University of Alabama, Birmingham, AL

**Application of the Independent Axiom on the Design of Object-Oriented Software Using the Axiomatic Design Theory** by A. R. PIMENTEL and P. C. STADZISZ Graduate School in Electrical Engineering and Industrial Computer Science The Federal Technological University of Paraná, Brazil

**Service-Oriented E-Learning Systems With Axiomatic Design** by \*V. BICER, C. TOGAY, and A. H. DOGRU, Department of Computer Engineering, Middle East Technical University, Turkey, \* Tepe Technology , Turkey

#### **SPECIAL SESSION**

**Rancho Santa Fe Ballroom, Salons 3**

**TUESDAY, June 27, 2:00 pm - 4:00 pm**

Discussion on collaboration between Texas Tech; UT Tyler, Robotics Institute Waseda University, Japan; Cankaya University, Ankara; Turkey, and College of Engineering, The Andhra University, India. Other institutions are also invited.

#### **COFFEE BREAKS**

**Everyday 10:00 am -10:30 am**

**Monday, Wednesday, Thursday, 3:30 pm - 4:00 pm**

**Tuesday, 3:00 pm - 3:30 pm**

#### **CONFERENCE OPENING RECEPTION**

**Sunday, June 25, 5:30-7:00 pm**

**Room: Rancho Santa Fe Ballroom**

#### **CONFERENCE LUNCHEON**

**Tuesday, June 27, 2006, 12:00 - 1:00 pm**

**Grand Ballroom Salons D&E**

#### **CONFERENCE DINNER**

**Monday, June 26, 2006, 7:00 pm - 9:30 pm**

**Grand Ballroom Salons E-H**

#### **RAMAMOORTHY DINNER**

**Tuesday, June 27, 2006, 7:00 pm - 9:30 pm**

**Room: Grand Ballroom Salons E-H**

**Optimal Strategy for Eliminating Coupling Terms from a Design Matrix** by T. LEE, MIT, MA

**SESSION-21 Room:** Rancho Santa Fe Ballroom  
Salons 4

Thursday, June 29, 4:00 pm - 6:00 pm

#### **GENERAL DESIGN & APPLICATIONS-IV**

**Session Organizer and Chair:** B. HUA, The Key Laboratory of Enhanced Heat Transfer and Energy Conservation, South China University of Technology, Research Center of Natural Gas, China

**Modeling and Optimization of Production and Operations for Refinery Industry** by B. HUA, L. MINGLIANG, Z. BINGJIAN, The Key Laboratory of Enhanced Heat Transfer and Energy Conservation, South China University of Technology, Research Center of Natural Gas, China

**Integrated Social Control Engineering & Product Manufacture Engineering Based on Safety Control** by X-W. XIONG, B. L. WYNN, Zhongheng High-Tech Institute, Academy of High-New Technology Sichuan University, China

**The Boeing 777: Development Life Cycle Follows Artifact** by N. JØRGENSEN, Roskilde University, Denmark

**Transdisciplinary Product Development Lifecycle Framework and its Application to an Avionics System** by B. GUMUS, A. ERTAS, and D. TATE, Mechanical Engineering Department, Texas Tech University, Lubbock, TX

**Innovative Integrated Design: The Subtle Art of Managing Knowledge** by A. A. BECHINA International University in Germany, Bruchsal, Germany

**SESSION-22 Room:** Coronado Room

Thursday, June 29, 4:00 pm - 6:00 pm

#### **SERVICE ORIENTED COMPUTING AND TELECOMMUNICATIONS: SYNERGIES AND COMPETITION**

**Session Organizer and Chair:** V. D'ANDREA - Universita' di Trento, Italy; T. MARGARIA - Universität Potsdam, Germany

**A Resource-Based approach for the Intelligent Execution of Service Compositions** by E. FREITER, BIBA, Bremen, Germany and I. FIKOURAS Ericsson, Research, Aachen, Germany

**Import of WSDL Definitions in TTCN-3 Targeting Testing of Web Services** by I. SCHIEFERDECKER, D. VEGA, and C. RENTEA, Fraunhofer FOKUS, Berlin, Germany

**The GalileoGate Solution Factory for Location-based Integrated Services** by M. HÖGL, Dynapeer GmbH, Technology Business Services, Berlin, Germany, and G. GATE, Europe, Berlin, Germany, T. MARGARIA, Universität Potsdam, Germany, B. Steffen, University of Dortmund, Germany

**Autonomic Communication for Space: The Next Frontier?** by J. L. RASH, NASA Goddard Space Flight Center, Greenbelt, R. STERRITT, University of Ulster, Northern Ireland, UK, and M. G. HINCHEY, NASA Goddard Space Flight Center, Greenbelt, Maryland

**SOA in Telecom Systems: Challenges and Possibilities** by N. BANERJEE, Motorola Research Lab, Dipanjan Chakraborty, A. A. NANAVALI, IBM India Research Lab

#### **DEMO**

**by Leon Jololian**

**An Integrated Transdisciplinary Teaching Environment**

**Friday, June 30, 2006, 9:00 am-10:30 am**





The Visitor's Bureau: <http://www.sandiego.org/nav/Visitors>  
Tours: <http://www.allsandiegotours.com/>  
The City Guide: <http://www.guestinformant.com/sandiego/index.htm>  
The San Diego Zoo: <http://www.sandiegozoo.org/>  
Sea World, San Diego: <http://www.4adventure.com/seaworld/ca/default.aspx>  
Harbor Tours and Excursions: <http://www.sdhe.com/>  
Hiking, Biking, and Kayaking: <http://www.hikebikekayak.com/>  
Things to Do: <http://www.sandiegonth.com/recreation.asp>  
Beaches: <http://www.sandiegonth.com/rec-beaches.asp>  
Museums: <http://www.sandiegonth.com/rec-museums.asp>  
The Performing Arts: <http://www.sandiegonth.com/rec-arts.asp>  
Casinos: <http://www.sandiegonth.com/rec-casinos.asp>  
Golfing: <http://www.sandiegonth.com/golf.asp>

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## CONFERENCE REGISTRATION FEES AND POLICIES

\$395 For SDPS Members who register before June 1, 2006  
 \$450 For SDPS Members who register after June 1, 2006  
 \$450 For Non-Members who register before June 1, 2006  
 \$500 For Non-Members who register after June 1, 2006

Registration Fee includes: IDPT Welcome Reception --- IDPT Conference Dinner on Monday--- Conference Luncheon on Tuesday --- Continental Breakfast --- Professor Ramamoorthy Dinner on Tuesday night--Coffee Breaks --- A volume of the conference proceedings.

Please note that we have cancelled the tour to Tijuana Mexico due to security reasons. Instead, all the registered participants are invited to join us at the Professor Ramamoorthy Dinner, free.

## AWARDS

Herbert A. Simon Gold Medal Award, George Kozmetsky Distinguished Achievement Award, Carl Adam P. Petri Distinguished Technical Achievement Award, K.T.Li Award for Outstanding Design of Economical/Social systems, C. V. Ramamoorthy Distinguished Scholar Award, Raymond T. Yeh Lifetime Achievement Award, Rudolf Christian Karl Diesel Best Paper and Best Presentation Awards, Distinguished Service Award and SDPS Fellowship will be presented at the conference.

## For more information contact:

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## HOTEL INFORMATION



## Hotel Registration Form

MARRIOTT DEL MAR,  
 SAN DIEGO, CALIFORNIA  
 June 25-30, 2006

### \$115 Single or double Occupancy

Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone \_\_\_\_\_ Fax \_\_\_\_\_

Arrival Date \_\_\_\_\_  
 Departure Date \_\_\_\_\_

Credit Card Name \_\_\_\_\_  
 Card Number \_\_\_\_\_  
 Expiration Date \_\_\_\_\_  
 Signature \_\_\_\_\_  
 Cardholder's Name \_\_\_\_\_

Registrations for the event will be made by individuals attendees directly with Marriott Del Mar reservations at 1 (800) 228-9290 or (858) 523-1700. Registrations must be received on or before (Friday, June 9, 2006).

Marriott Del Mar is located 17 miles from north San Diego. Area attractions include beaches, Balboa Park, Del Mar Race Track, Del Mar Village, La Jolla Village, Legoland, San Diego Wild Animal Park, San Diego Zoo, Scripps Aquarium, and SeaWorld.