SDPS — SOCIETY FOR DESIGN AND PROCESS SCIENCE

CHINESE MECHANICAL ENGINEERING SOCIETY

SOFTWARE ENGINEERING SOCIETY — **SES**

ADVANCED PROGRAM
THE EIGHTH
WORLD CONFERENCE ON

INTEGRATED DESIGN & PROCESS TECHNOLOGY

Conference Theme:
Future of Software Engineering and Transdisciplinary Paradigm

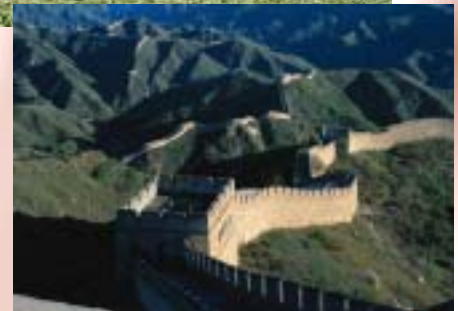**FRAGRANT HILL HOTEL- BEIJING - CHINA**

A CITY WITH MAGIC & HERITAGE

June 12-16, 2005

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IDPT
SPECIAL FEATURES

OPENING RECEPTION
Welcome by

Professor Lu Yongxiang
Prof. Dr.-Ing. Mult.hon.Dr. Eng.
Sunday, June 12, 2005   5:30 pm - 7:00 pm
Room: Banquet Hall

Professor Lu Yongxiang is the President of Chinese Academy of Sciences (CAS) and Chinese Mechanical Engineering Society (CMES). He is an Academician of CAS, Chinese Academy of Engineering(CAE), Third World Academy of Sciences (TWAS), Member of Academic Degree Committee of the State Council, Composition of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), and Association for Research and Application of Fluid Power (Germany).He is Guest Professor of Shanghai University. Visiting Professor of Tsinghua University, University of Hong Kong.

OPENING ADDRESS

Professor B. Hua
South China University of Technology
Monday, June 13, 2005   8:00 am - 8:30 am
Room: Banquet Hall

Ben Hua is a Professor and Doctor Supervisor in Chemical Engineering Research Institute of South China University of Technology. He also is the First Chair Scientist of Project of Major State Basic Research Program: "The Key Problems in High Efficiency Energy Conservation", the Chairman of Academic Committee of the Key Laboratory of Enhanced Heat Transfer and Energy Conservation of Ministry of Education, Standing Vice-Chairman of Thermodynamics and Engineering Application Committee of China Energy Resources Society, Founding Member (December 1995) and Fellow (1999) of Society for Design and Process Science (SDPS), Austin, USA. He has published more than 220 papers, wrote and co-edited 4 books, and holds 2 patents in Chemical Engineering in China. Prof. Hua established and developed the "Three-Link" energy structure theory and strategic method for integration of process systems. "Three-Link-Method" fully utilizes computer technique as well as process simulator and other software. Applying the method, more than 40 industrial projects concerning plants such as crude oil distillation, catalytic reforming, hydrocarbon separation, ethylene, formadehyde, fertilizer, as well as total refineries and petrochemical works have been fulfilled.

IDPT DISTINGUISHED LECTURE SERIES

Professor C. V. Ramamoorthy
Professor Emeritus
University of California, Berkeley
Monday, June 13, 2005 8:30 am - 9:00 am
Room: Banquet Hall

Professor Ramamoorthy's distinguished career traces back to the 1960s. In 1961, while working as a scientist for Honeywell, Ramamoorthy developed the entire microcode to handle instruction sequencing and control for the H290, Honeywell's first transistorized system. The H290 was a general-purpose, stored-program digital computer designed for process monitoring and control.

In the late 1960s, Ramamoorthy joined the University of Texas, Austin, as a professor of electrical engineering and computer science, later becoming chair of the computer science department. He developed, with his students, the FACES System for automated test generation and evaluation techniques. These test techniques were successfully applied to discover programming errors in Bell laboratories' Safeguard Missile Defense System for the US Army and were intended to defend Minuteman silos located around the US from enemy attack. In 1971, these techniques were modified for reuse at NASA's Space Shuttle Structural Test Facility in Huntsville, Alabama.

At UC Berkeley, where he joined the faculty in 1972, Ramamoorthy is an emeritus professor of Electrical Engineering and computer science. Most recently, his research investigations have focused on service industries-functions, features, and control-and the relationships between software and service engineering.

IEEE Society has honored Ramamoorthy's acheivements with the Taylor L. Booth Education Award in 1989, the Richard E. Merwin Distinguished Service Award in 1993, Golden Core recognition in 1966, and Tsutomu Kanai Award in 2000. He also received the IEEE Centennial Medal and the IEEE Third Millennium Medal. He has been an IEEE Fellow since 1978 and is a Fellow of the Society for Design and Process Science, from which he received the R.T. Yeh Distinguished Achievement Award in 1997.

A longtime Computer Society volunteer, Ramamoorthy was founding editor in chief of IEEE Transactions on Knowledge and Data Engineering and served as editor in chief of IEEE Transactions on Software Engineering, He has published more than 150 papers, co-edited three books, and holds patents in computer architecture, software engineering, computer testing and diagnosis and databases.

He holds two undergraduate degrees in Physics from India. He obtained two graduate degrees in Mechanical Engineering from University of California at Berkeley, and two graduate degrees in Applied mathematics and Computer Sciences from Harvard.

PLENARY SESSION-I

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

Monday, June 13, 2005 9:00 am - 9:30 am
Room: Banquet Hall

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 prestigeous IEEE- Computer Society¹s Golden Core Member award.

PLENARY SESSION-III

Dr. S. S. Iyengar
Roy Paul Daniel Professor
L.S.U. Baton Rouge, LA

Monday, June 13, 2005 9:30 am - 10:00 am
Room: Banquet Hall

Dr.S.S.Iyengar a Distinguished Professor and Chairman of the Department of Computer Science at Louisiana State University, USA has been awarded the most prestigious "Distinguished Alumni Award" for the year 2001 at the Indian Institute of Science, Bangalore recently.

Professor Iyengar an eminent Computer Scientist has been at Louisiana State University for the last 23 years. He has received number of awards including the IEEE Computer Society Technical Award for outstanding Contributions in Algorithms and Data Structures. He has written over 350 research papers iin IEEE, ACM and other journals and referred proceedings. His best results are in the area of Distributed Sensor Networks, Data Mining, and Networking Techniques. He has published over 13 books published by Prentice Hall, John Wiley and Sons, CRC press, IEEE Computer Society press. His books have been used in many best Universities in United States and around the world. His research has been funded by various agencies including NASA, ONR, DARP A, DOE, Jet Propulsion Laboratory, Oakridge National Laboratory, US Army Research Office and various State agencies. He has generated over 8 million dollars in the last 10 years. He has given over 50 invited Lectures / Plenary Talks at various Institutions across the world. He has been a visiting Professor in University of Paris, University of Bonn, Indian Institute of Science etc. He has been the program Chairman for many National and International conferences.

His Paper titled "Virtual Quad tress" solves an important problem of image representation. Prof. Iyengar discovered a new data structure called Translation Invariant data structure for storing two and three dimensional images. His work on balancing algorithm has also become a bench mark for evaluating other algorithms in time and space complexity.

Professor Iyengar is a member of the New York Academy of Science, A fellow of the Association for Computing Machinery (ACM), Fellow of the Institute of Electrical and Electronics Engineers (IEEE), Fellow of the American Association of Advancement of Science (AAAS), member of the National Research Council review committee, NASA Summer faculty fellow, SIAM Distinguished Lecturer, ACM National Institute of Health (NIH-NLM) and Fellow of various other organizations. He has been on the Computer Science Accreditation Board for ACM and IEEE. He has been a reviewer of Computer Science Programs in US and Asia. In Karnataka, He was a member of the Information Technology Board established by the Karnataka Government.

PLENARY SESSION-II

Bob Block
Chairman
LandMark Entertainment and 3-D Business Tools

Monday, June 13, 2005 10:30 am - 11:00 am
Room: Banquet Hall

Designing Innovative Interactive Imageries

Bob is a serial entrepreneur for the last 40 years. He started using software for Advertising agency in the 1960's, and participated early in the creation of Pay-TV industry in 1970's. Having successfully launched the Pay-TV business, in the early 1980's, he became interested in cellular telephony and participated in the launch of the cellular telephone business by organizing a group of applicants that were granted FCC licenses for more than 70 Cellular operating companies. Beginning in the late 1980's, he started setting up communication companies in developing nations. This activity continued through the 1990's and into the new millennium.He then got involved in the digitial story telling and creation and became the Chairman of Landmark entertainment for the designing and creation of digital imgineries. He developed 3-D Business Tools with an aim to dramatically improve the business performance with a comprehensive tool set. In 2000 he began to concentrate on international business activities with a focus in China and became a board member at the United Asset Exchange in Shanghai.

PLENARY SESSION-IV

Dr. J.K. Aggarwal
Cullen Professor
The University of Texas, Austin, Texas

Monday, June 13, 2005 11:00 am - 11:30 am
Room: Banquet Hall

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-V

Dr. Peter Chen
Foster Distinguished Chair Professor
L.S.U. Baton Rouge, LA, USA

Monday, June 13, 2005 11:30 am - 12:00 am
Room: Banquet Hall

Dr. Peter Chen at Louisiana State University where he holds the position of M. J. Foster Distinguished Chair Professor of Computer Science since 1983. Dr. Chen is the originator of the Entity-Relationship Model (ER Model), which serves as the foundation of many systems analysis and design methodologies, computer-aided software engineering (CASE) tools, and repository systems including IBM's Repository Manager/MVS and DEC's CDD/Plus.

Dr. Chen's work is a cornerstone of software engineering, in particular Computer-Aided Software Engineering (CASE). In the late 80's and early 90's, IBM's Application Development Cycle (AD/Cycle) framework and DB2 repository (RM/MVS) were based on the ER model. Other vendors' repository systems such as Digital's CDD+ were also based on the ER model.. Dr. Chen has made significant impact on the CASE industry by his research work and by his lecturing around the world on structured system development methodologies. Most of the major CASE tools including Computer Associates' ERWIN, Oracle's Designer/2000, and Sybase's PowerDesigner (and even a general drawing tool like Microsoft's VISIO) are influenced by the ER model.

Dr. Peter Chen is also the Editor-in-Chief of Data & Knowledge Engineering, the Associate Editor for the Journal of Intelligent Robotic Systems and other journals. In the past, he was the Associate Editor for IEEE Computer, Information Sciences and other journals. Dr. Chen is a Fellow of the IEEE.

LUNCHEON SPEAKER
Dr. Raymond T. Yeh
Chairman
JtecGlobal, Inc.

Monday, June 13, 2005   12:00 pm - 1:00 pm
Room: Juxiangge Restaurant (second floor)

Holistic HealthCare for Enterprises

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 to 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), IIISis (Brazil), Fujitsu (Japan), NEC (Japan), Hatachi (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 Fujutsu 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.

CONFERENCE LUNCHEON
Monday June 13, 2005
Juxiangge Restaurant
(second floor), 12:00 - 1:00 pm

KEYNOTE SPEAKER
Dr. Helmut Hoyer
Vice Chancellor
FernUniversitaet in Hagen, Germany

Monday, June 13, 2005   1:00 pm - 1:30 pm
Room: Banquet Hall

Universities in the Digital World Innovations and Change

Dr. Helmut Hoyer is Rector (Vice Chancellor) at the FernUniversitaet in Hagen, Germay, since 1997 and since 2001 he is the Chairman of Rectors[1] Conference of the state of North Rhine-Westphalia. 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 attains the rank a Full professor and is the head of the Chair of Control Systems Engineering. Prior to joining the FernUniversitaet, 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 obotics and assistive technologies for elderly people and people with disabilities. The focal points of his interest and acivities during his term of office as a Rector were the introduction of New edia in Higher Education and the transion of the FernUniversitaet into a Virtual University.

PLENARY SESSION-VI

Wen-Tsuen Chen
Professor
Vice Chancellor
University System of Taiwan

Monday, June 13, 2005 1:30 pm - 2:00 pm
Room: Banquet Hall

Professor Chen is the Vice Chancellor for Research of the University System of Taiwan, a university system consisting of four top-ranking research universities 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.

PLENARY SESSION-VII

Jeffrey J.P. Tsai
Director, Distributed Real-Time
Intelligent Systems Laboratory
University of Illinois

Monday, June 13, 2005 2:00 pm - 2:30 pm
Room: Banquet Hall

Intrusion Detection on for Sensor Networks

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 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 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.

BUFFET LUNCH & DINNER
Tuesday June 14 and Wednesday June 15
Buffet Lunch 12:00 - 1:00 pm
Room: Juxiangge Restaurant

Buffet Dinner 7:00 - 9:30 pm
Room: Juxiangge Restaurant

PLENARY SESSION-VIII

Prof. Dehua Ju
Computer Science and Business School at
East China University of Science & Technology

Monday, June 13, 2005 2:30 pm - 3:00 pm
Room: Banquet Hall

A professor of computer science and business school at East China University of Science & Technology, a visiting research scientist and supervisor of CS doctoral students in the Institute of Software at the Chinese Academy of Science, the lifelong research fellow at State Management Science Institute and an adjunct professor at Wuhan University. He co-founded ASTI, an international software company in 1990. He earned the State Science & Technology Achievements Award 1992, the first prize of Shanghai S&T Achievements Award, the State Distinguished Expert Award, and Shanghai Elite Nominee Award in Science and Technology for his excellence in research and application of CASE tools. He is a senior member of IEEE and the industrial advisory board member of IEEE Software. Right now he is vice president of Shanghai Software Industry Association, director of China Software Industry Association. To promote the software quality & process improvement targeting the modern international standards, he initialed to establish the Shanghai Software Quality Consortium, Shanghai SPIN and QAI Federation Chapter, the first of such international organizations in China, and was elected as the first chairman of these organizations. To promote technology transfer in China, as the editor-in-chief and founder, he initialed to develop a 'one-stop' IT resources website "IT Source", which is becoming one of the most attractive IT websites in China. Recently, he was also nominated as 2003 Leading People in Shanghai S&T Venture.

PLENARY SESSION-IX

Dr. Eunice Santos
Virginia Polytechnic Institute & State University

Monday, June 13, 2005 3:00 pm - 3:30 pm
Room: Banquet Hall

A Unifying Framework for Large-Scale, Dynamic Real-Time Information Processing on Distributed Platforms

Eunice E. Santos is the Director of the Laboratory for Computation, Information & Distributed Processing, and an Associate Professor in the Department of Computer Science at Virginia Polytechnic Institute & State University. She received B.S. and M.S. degrees in both Mathematics and Computer Science. In 1995, she obtained a Ph.D. in Computer Science from UC Berkeley. Before joining VT, Dr. Santos was a faculty member in the Department of Electrical Engineering and Computer Science at Lehigh University. Her research interests include: parallel & distributed processing, information retrieval, scientific computing, networking & scheduling, computational science,

algorithms & complexity, tools & environments, and evolutionary computing. She has served on numerous program committees and editorial boards and is currently serving as the subject area editor for the Journal of Supercomputing. She is a recipient of an NSF CAREER grant, the Spira Award for Excellence in Teaching, and the Robinson Faculty Award.

INVITED SESSION-I

Drivers of 21st Century
Monday, June 13, 2005 4:00 pm - 5:30 pm
Room: Banquet Hall

Session Organizer: Raymond Yeh, Chairman, JtecGlobal, Inc.

Summary:
There are many potential forces that may shape the new century in different ways. We selected three key drivers, namely; Energy medicine to rapidly detect and heal human illnesses;— Dr. Franscisco Vianna is a practicing medical doctor in Brazil who is also one of the earlier pioneer of energy medicine for holistic healing.

Building of 21st century enterprises for the creation of a harmonious society; — Mr. Ken Mok was an army general and became an enterpreneur. He is currently the worldwide President of Jtec, Inc. and has developed a complete theory and an enterprise management platform for the creation and management of Project Based Enterprises(PBE), a new kind of frictionless horizontal organization which can adapt quickly to changing environment. Such an organization could be very well managed from single project to the entire organization considered as a portfolio of projects.

Building Trust across national borders for peace — Dr. Abdu Megatali is the executive director of the Kozmetsky Global Collaboratory(KGC) at the University of Texas at Austin, and a senior research fellow at the IC^2 Institute. Previously, he was a high level executive at the world Bank. The KGC under his leadership is developing technology and methodology for cross-border dialogues.

Dr. Romeo Flores is Executive Director of INVITE, reporting directly to the Governor of Nuevo Leon. INVITE stands for "Programa Integración del Desarrollo Regional y Vinculacíon con Texas". It is a CBIRD type of organization promoting collaboration among the states of Chihuahua, Coahuila, Nuevo Leon, Tamaulipas (Mexico) and integration with Texas (USA). On October 14, 2004, the five governors signed an agreement committing themselves to these goals.

Together, these four drivers could have enormous impact to our society in the new millenium. Contributors are:

Building 21st Century Enterprises by KEN MOK

21st Century Process-oriented Medicine by FRANCISCO VIANNA, Brazil
Cross Borders Collaboration by ABDU MEGATELI, Texas; and ROMEO FLORES, Nuevo Leon

DINNER SPEAKER
Ying-luo Wang
Member of the Chinese Academy of Engineering

Monday, June 13, 2005 7:00 pm - 9:30 pm
Room: Juxiangge Restaurant

Ying-luo Wang, a member of the Chinese Academy of Engineering, is a national famous expert and a pioneer in the field of management science and engineering. Because of his persistent pursuit of the study and education of management discipline for half a century, he keeps staying in the frontier of this field. He undertook many systemic and innovative works and made lot of contributions to the development and discipline interlinks of management engineering, system engineering and industrial engineering. He synthesized and applied relevant theories and techniques to engineering management and social economic problems and achieved a great success.

He is the first who advocated educating management talents from engineers, actively pushed double degree programs and MBA programs among senior management talents in China. As the first Ph.D. advisor in the field of management engineering in China, Xi'an Jiaotong was the earliest university, which opened postdoctoral stations in this field. He is the Ph.D. advisor with 53 students got their degrees and 9 postdoctoral researchers. Due to his outstanding contribution for economic development, he was granted "Bole Award" by Xi'an Jiaotong University in 2002.

He has published more than 300 papers in national and international academic journals and proceedings. He is the author of 22 textbooks and monographs on strategic decision-making, system engineering, industrial engineering, etc., among which Introduction to System Engineering, System Engineering, System Engineering Theory: Method and It's Application are widely used by many colleges and universities across China. He has obtained the third prize of Progress in National Science and Technology, scientific and technological progress one at provincial and ministerial levels, 8 second prizes, two items of prize of the achievement of national teaching, teaching achievement one first prize at provincial and ministerial levels, obtain the title of honor of " advanced scientific worker of national institution of higher education ".

TEA BREAKS
Everyday 10:00 am -10:30 am
Monday, 3:30 pm - 4:00 pm
Tuesday, 3:00 pm - 3:30 pm
Wednesday, 3:15 pm - 3:30 pm

INVITED SESSION-II

On Challenges and Prospects of Software Engineering

Tuesday, June 14, 2005 1:00 pm - 3:00 pm
Tuesday, June 14, 2005 3:30 pm - 4:30 pm
Room: Multi-function Hall

Session Organizer: Bernd Krämer, FernUniversitaet, Hagen, Germany

Summary:
Software engineering was a key discipline in information and communications technology for decades. In more and more technical and organizational domains software engineering has, as well become an enabling technology for innovation. Particular characteristics of these application areas, new software development paradigms including object technology, reusable software components, agent technology or service-oriented computing, and non-functional requirements such as dependability, trust or reliability continuously create new challenges to software engineering approaches.

This session includes five invited contributions each addressing a software engineering issue that concerns researchers today. Bicarregui and his colleagues present a compilation approach that aims to build a repository of verified software components. Bernhard Steffen presents a specification-based technique to build reliable software applications that include badly documented legacy code. Hinchey et al. expand the view from software to systems engineering in their presentation of NASA's vision to employ swarms of lightweight autonomous spacecrafts equipped with all kinds of miniaturized instruments and controlled by software agents that mimic social insect type of behavior to prospect the frontier of our solar systems. Bertrand Meyer discusses recent advance in object technology and explores their effect on other engineering disciplines. Ivanyukovich and his colleagues finally address the more recent design concept of service-based computing in which applications are built from independent, geographically dispersed services. The authors draft a development methodology accommodating the specific needs of service-oriented applications. The session will be concluded with a panel discussion in which the presenters can be challenged by the auditory. Contributors are:

The Verified Software Repository: a step towards the verifying compiler by J. C. Bicarregui*, C. A. R. Hoare**, and J. C. P. Woodcock***; *Rutherford Appleton Laboratory, Chilton, Didcot, Oxon, UK; **Microsoft Research, Cambridge CB3 0FB, UK; ***Department of Computer Science, University of York, Heslington, York, UK

System Modeling in the Context of Legacy Systems by Bernhard Steffen, Department of Computer Science, University of Dortmund, Dortmund, Germany

You Can't Get There From Here! Problems and potential solutions in developing new classes of complex systems by Michael G. Hinchey, James L. Rash, Walter F. Truszkowski* and Christopehr A. Rouff; *NASA Goddard Space Flight Center, Information Systems Division, Greenbelt, MD; SAIC, Advanced Concepts Business Unit, McLean, VA 22102, USA

Object technology as a general design discipline? by Bertrand Meyer, ETH Zurich & Eiffel Software

Towards a service-oriented development methodology by Alexander Ivanyukovich, G. R. Gangadharan, Vincenzo D'Andrea, and Maurizio Marchese, Department of Information and Communication Technology, University of Trento, Italy

INVITED SESSION-III

On Semantic Modeling and Processes

Tuesday, June 14, 2005 3:30 pm - 5:00 pm
Room: Multi-function Hall

Session Organizer: P.C.-Y. SHEU, University of California, Irvine

Understanding Fusion of Ontology and Metamodeling by JIN LIU, KEQING HE, BING LI, Wuhan University

Maintaining Consistency of Ontologies Registry with Description Logic by WEI LIU, KEQING HE, YANGFAN HE, Wuhan University

Web Document Classification by Considering Word-Concept and Concept-Ontology Support by MIN LI, ENHONG CHEN, SHU WANG, University of Science and Technology of China, P. C.-Y. SHEU, University of California, Irvine

Automatic Domain Ontology Generation from Web Sites by WAI LAM, TAK-LAM WONG, the Chinese University of Hong Kong, ENHONG CHEN, University of Science and Technology of China

INVITED SESSION-IV

On Decision Support and Process Management

Tuesday, June 14, 2005 5:00 pm - 6:30 pm
Room: Multi-function Hall

Session Organizer: P.C.-Y.SHEU, University of California, Irvine

A New Approach of Multi-Attribute Evaluation and Decision Based on Learning and Analysis of Attribute Coordinate by JIALI. FENG, Shanghai Maritime University

SSDM –A Semantic System Development Methodology by FEI XIE, P. C.-Y. SHEU, University of California, Irvine; ATSUSHI KITAZAWA, HIROSHI YAMAGUCHI, NEC Soft, Japan

General Status & Trends of Japanese IT Industry in the Area of Ubiquitous Network by SACHIO WATANABE, Sojo University, Japan

A Dynamic QFD Method for Real Time Enterprise Performance Monitoring by PENG LI, YUAN S. PENG, BEN HUA, South China University of Technology; MING L. LU, Aspen Technology inc., Ten Canal Park, Cambridge, MA

INVITED SESSION-V

On Human Computer Interactions
Co-sponsored by ACM SIGCHI China

Tuesday, June 14, 2005 5:00 pm - 6:30 pm
Room: Meeting Room 1

Session Organizer: GUOZHONG DAI

Representing User Interface in XML Using Model-Bases Techniques by GAO DAWEI, Shanddong University, China

HCI in Physical-Cyber Dual Space by TAO LINMI, Tsinghua University, China

Affordance Design in Ubiquitous Computing by WANG HUI, Institute of Software, CAS, China

Scenario-Based Software Development for Pen-Based Interface by WANG HUI, Institute of Software, CAS, China

An Empirical Study on the Smallest Comfortable Button/ Icon Size on Touch Screen by SUN XIANGHONG, Institute of Psychology, CAS, China

WORKSHOP

Workshop on Process Technology Platform

Wednesday, June 15, 2005 1:00 pm - 6:30 pm
Room: Multi-function Hall

Workshop Organizer: Fuad Gattaz Sobrinho, Honorary Chief Scientist International Institute for Systems Integration.

Summary:
The participants of this workshop will discuss and present research results, proposals, experiences on requirements, design, implementations, evaluations and applications of Process Technology Platforms within multiple areas of interest. Reasearch and Engineering teams from different institutions across diferent countries, within different areas of knowledge , will take advantages to form a networking to constantly debate on the future trends, concepts, methods, techniques and tools as well as to create an environment to share products, services and processes with the reference of bringing prosperity and wealthy to mankind. The aim of this workshop is to transform itself into a Living Laboratory in witch its governing dynamics is designed by process principles. It is the intention of this workshop to create a symbiotic interaction behavior among scientists, educators, engineers, practicians, decision makers, government and industry leaders, and other critical thinkers.

CONFERENCE DINNER
Monday June 13, 2005
Banquet Hall, 7:00 pm - 9:30 pm

TECHNICAL PAPER SESSIONS

More than 200 high quality technical papers will be presented in more than 40 sessions. Schedule of technical papers will be announced in the final program.

SDPS & TheATLAS AWARDS

Individuals(s) who have demonstrated exceptional vision, have worked diligently, and have been instrumental in developing and implementing the concepts and philosophy of transdisciplinary education and research will be selected by TheATLAS to receive the **Academy Gold Medal of Honor**. Distinguished SDPS Awards will also be presented and newly selected SDPS Fellows will receive the Fellow Plaque and the SDPS Pin at the Ceremony during the Conference dinner and Luncheon.

For more information contact:
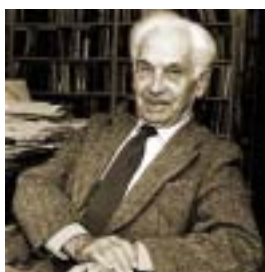
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Dr. A. Ertas

WORKSHOP DEDICATED TO THE MEMORY OF
ERNST MAYR, ALEXANDER AGASSIZ PROFESSOR OF ZOOLOGY, HARVARD

Workshop on Biologically Inspired
Transdisciplinary Education & Research: What can we learn from the science of biology?

Wednesday June 15, 2005 3:30 pm - 5:30 pm
Room: Banquet Hall

Workshop Organizers: M.M. TANIK, University of Alabama at Birmingham, Birmingham, AL. and T.T. MAXWELL, Texas Tech University, Lubbock, Texas

Ernst Mayr (1904-2005)
Alexander Agassiz Professor of Zoology, Harvard

Widely considered the world's most eminent evolutionary biologist and even one of the 100 greatest scientists of all time, Mayr joined Harvard's Faculty of Arts and Sciences in 1953 as Alexander Agassiz Professor of Zoology and led Harvard's Museum of Comparative Zoology from 1961 to 1970. He retired in 1975, assuming the title Alexander Agassiz Professor of Zoology Emeritus. Born July 5, 1904, in Kempten, Germany, Mayr earned a medical degree from the University of Greifswald in 1925. Descended from generations of doctors, he broke off his medical career and turned his attention to zoology, earning a Ph.D. from the University of Berlin just 16 months later.

Throughout his career, Mayr fought tirelessly to ensure biology's place in the pantheon of the "true sciences," alongside physics, astronomy, and chemistry — a view not shared by many scientists as late as the 1960s. Driven by a lifelong interest in the "why" of evolutionary biology, he also pioneered the study of the philosophy and history of biology. Among his many honors, Mayr captured the three prizes widely regarded as the "triple crown" of biology: the Balzan Prize in 1983, the International Prize for Biology in 1994, and the Crafoord Prize in 1999. Mayr was also awarded the National Medal of Science in 1970. Throughout his nearly 80-year career, as his research ranged throughout ornithology, taxonomy, zoogeography, evolution, systematics, and the history and philosophy of biology, Mayr demonstrated his transdisciplinary interest by his work.

Having written more than 700 journal articles and 25 books, Mayr wrote just about one book or article every month of his career. His 25th book "What makes biology unique? Considerations on the autonomy of a scientific discipline," was published in 1994. Mayr passed away in February 3, 2004.

Summary:
Eminent evolutionary biologist Ernst Mayr defines biology in his last book "What makes biology unique? Considerations on the autonomy of a scientific discipline," published 2004 as "biology actually consists of two rather different fields, mechanistic (functional) biology and historical biology." He further clarifies historical biology as evolutionary biology and identifies scientific methods used in both fields. He cautions against confusing the reductionist thinking with analysis. He further recognizes the lack of "programmatic" aspect in 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. Mayr also identifies the significance of "population thinking" in biology and the role of chance and selection. His description of "historical scenarios" has parallels in engineering design in the form of design scenarios. Analysis of scenarios is performed forward in time but analysis of historical scenarios (narratives) is performed backward in time.

Biology is a core science of the 21st century and has to be integrated into the core curriculum of natural science and engineering disciplines. This is not an easy undertaking. In support of such a vision, do we need to develop a biologically inspired transdisciplinary education and research framework? We wish to discuss what the issues are and challenges including to use this workshop as a vehicle to link researchers, educators and learners in ways that will impact transdisciplinary education at all levels.

In our "FIBR: Integrative Studies of Symmetry-Breaking Events In Cells: An Entropic Investigation Based On the Effects of Gravity and Light" proposal to NSF we have identified the value of these lines of thinking and proposed the development of biologically inspired business management course (Dr. M. N. Tanju) and biologically inspired engineering design modules (Dr. A. Ertas and Dr. T. Maxwell). A secondary objective of the workshop is to discuss the approaches to develop these transdisciplinary educational materials.

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

The objective of this workshop is to explore the interrelationships between the developing transdisciplinary model and biological sciences. The workshop will begin with a rememberance of Professor Ernst Mayr. This short ceremony will be followed by Dr. Atila Ertas' keynote speech. Dr. Ertas' presentation will document the past and current efforts to develop transdisciplinary programs. He will conclude his speech with a series of open ended questions about the role of biology in transdisciplinary movement. Workshop participants will then be divided into teams. These teams will use Dr. Ertas' comments as starting point to identify areas and ways which transdisciplinary programs may be strengthened through the incorporation of biological concepts and processes. Results of this workshop will be analyzed and published on the ITER website.

WORKSHOP KEYNOTE SPEAKER

Atila Ertas
**Professor and Director of
Institute for Transdiciplinary Education and Research (ITER)**

The Future: Transdisciplinary Education and Research

Dr. Atila Ertas, Professor of Mechanical Engineering, received his masters and Ph.D. from Texas A&M University. He had 12 years of industrial experience prior to pursuing his graduate studies. Dr. Ertas was a member of the Mechanical Engineering faculty at Texas A&M for 4 years before joining Texas Tech University in 1985. Dr. Ertas has published more than 100 scientific papers on design and vibrations, he is co–editor of more than 30 conference proceedings, and he has co–authored an interdisciplinary design textbook, The Engineering Design Process published by John Wiley & Sons, Inc., which has been adopted by universities across the country. He has been PI or Co–PI on numerous funded research projects and has received several National Awards for his design research projects. Dr. Ertas is the founder of The Academy for Learning and Advanced Studies (TheATLAS) for transdisciplinary research and education and co–Founder of the Society for Design and Process Science (SDPS). Over the past ten years SDPS has led the development of transdisciplinary research and education. Dr. Ertas Craeted and established GKE (George Kozmetsky En-

dowment) to support transdisciplinary educational activities around the world. SDPS has honored Dr. Ertas' acheivements with the George Kozmetsky Distinguished Achievement Award in recognition of his distinguished and meritorious achievement in transdisciplinary education and research. He is a fellow of the American Society of Mechanical Engineers (ASME), a Fellow of the Society for Design and Process Science (SDPS), and a Senior Research Fellow of ICC Institute at the University of Texas Austin. During the past eight years he has developed an off–campus Masters program on transdisciplinary research and education with the Raytheon Company. More than 100 Raytheon engineers have graduated from this program. Dr. Ertas' contributions to the education, research, and professional communities have been recognized by numerous honors and awards, including numerous College of Engineering teaching and research awards, President's Excellence award in Teaching, George T. and Gladys Hanger Abell Faculty Award, and President's Academic Achievement Award.

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