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FV2010

FUTURE VISION 2010

A CONFERENCE ON THE FUTURE OF INFORMATION
AND TELECOMMUNICATION TECHNOLOGY

FRIDAY, SEPTEMBER 9, 2005

CSU LORY STUDENT CENTER 8AM - 4PM

Keynote speaker - Ed Leonard, CTO DreamWorks Animation SKG

A conference co-sponsored by the Information Science
and Technology Center (ISTeC) at Colorado State University
and the Hewlett-Packard Company with support from the
ISTeC Industrial Advisory Council.

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ISTeC (Information Science & Technology Center) is a university-wide organization for promoting,
facilitating, and enhancing CSU's research, education, and outreach activities pertaining to
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Future Vision 2010

Friday, September 9, 2005



Schedule:

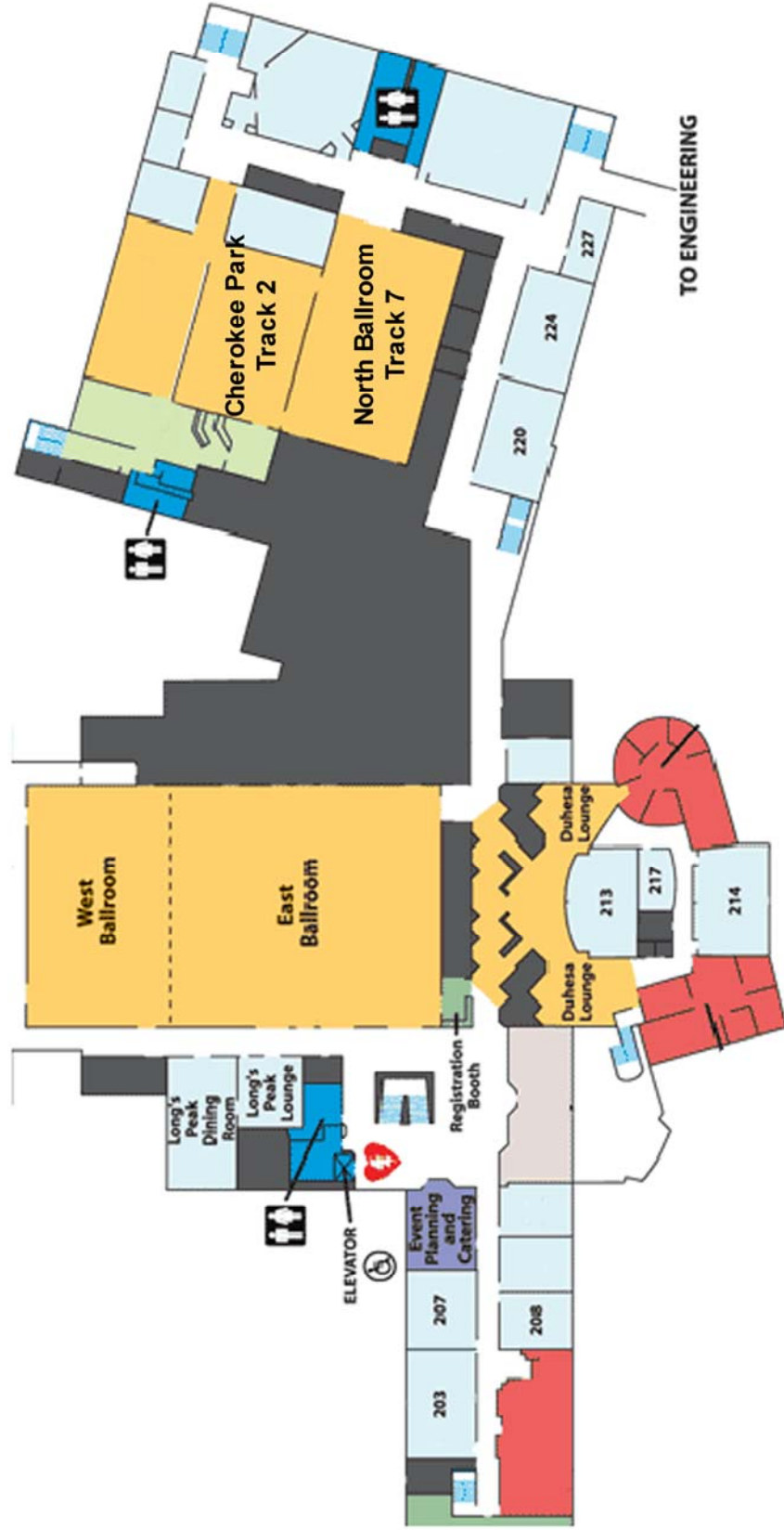
8:00-8:15	Coffee	East Ballroom
8:15-9:20	Welcome, Pete Seel and Debra Zimmerman, Co-Chairs Opening Plenary Session – “The Future of the Flat World” <ul style="list-style-type: none">▪ Tony Frank, Provost, CSU, “Implications of the Flat World for Higher Education”▪ Bdale Garbee, HP, “The Explosion of Open Source Software Community Development on a Global Basis”▪ John Crawford, Intel, “Intel and the Flat World”	East Ballroom
9:30-10:30	Track Sessions A	
	Track 1 - Computer Security	Rm 224
	Track 2 - Working in the Global Environment – 2005-2010	Rm 213
	Track 3 - Digital Imaging	Cherokee Park Ballroom
	Track 4 - Digital Asset and Rights Management	Rm 214
	Track 5 - Future of Interoperable Networks: Wired and Wireless	Rm 220
	Track 6 - Information Technology in Agricultural Sciences	Rm 203
	Track 7 - Alternative Models of Computing	North Ballroom
10:30-10:45	Break	
10:45-11:45	Track Sessions B	
Noon-1:30	Lunch (on your own)	
1:30-2:30	Keynote speaker Ed Leonard, CTO, DreamWorks Animation	East Ballroom
2:30-4:00	Small Group Discussions and Corporate Sponsor Recruiting sessions	Longs Peak/West Ballroom

Coffee service will be available to attendees in the morning in the Duhesa Lounge.

Lory Student Center

UPPER LEVEL

- Rm 224 - Track 1 - Computer Security
- Rm 213 - Track 2 - Working in the Global Environment
- Cherokee Park - Track 3 - Digital Imaging
- Rm 214 - Track 4 - Digital Asset and Rights Management
- Rm 220 - Track 5 - Future of Interoperable Networks: Wired and Wireless
- Rm 203 - Track 6 - Information Technology in Agricultural Sciences
- North Ballroom - Track 7 - Alternative Models of Computing





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Track 1 - Computer Security Room 224

As computer software and interconnected networks have become more sophisticated and complex, a growing “hacker underground” has emerged to exploit system vulnerabilities with disruptive viruses and direct attacks on networks. Criminal and cyber-warfare attacks are also an area of increasing international concern. This track will explore present and future trends in computer security, a rapidly-growing field in information science and technology.

Coordinators – Anura Jayasumana, CSU Electrical and Computer Engineering
Dylan Sommerfeld, HP

Moderator, Aram Ossorio, HP

Session A (speaker) "Cyber Crime - Historic Overview and Future Trends" - David Mahon,
Special Agent, FBI Cyber Crimes Division, Denver

Session B (panel) “Cyber Security Challenges and Strategies for the Future”
Terry Escamilla, IBM
Dan Massey, CSU, Computer Science
Aram Ossorio, HP
Indrajit Ray, CSU, Computer Science



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Track 2 - Working in the Global Environment – 2005-2010 Room 213

Information technology workers are routinely assigned to work in project teams on a global basis, spread out over many sites, businesses, cultures, and time zones. Connectivity provided by the Internet and other communication technologies facilitates a collaborative work environment in which job assignments can be performed anywhere in the world, without the barriers of time and space. This track focuses on virtual teams. Experts from industry and academia will discuss the benefits and challenges of working virtually, and will explore the future of teamwork in the global environment.

Coordinators – David Hachigian, HP

Moderator, Jamie Switzer, CSU Journalism and Technical Communications

Session A (panel) “How to Work Virtually: Best Practices for Virtual Teams”

Kirsten Broadfoot, CSU, Speech Communication

Carl Dierschow, HP

Jackie Hartman, CSU, Management

Heinrich Schwarz, CU Boulder

Wendy True-Zuschneid, Agilent

Session B (panel) “Benefits and Challenges of the Virtual Office: Stories from the Field”

Bob Bury, HP

Trudy Haines, HP

Mike Myshatyn, HP

David O’Callaghan, Cisco Systems

Robin Peters, HP



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Track 3 - Digital Imaging Cherokee Park Ballroom

Digital imaging (in both still and video modes) is still in its infancy and will come into its own during this next decade. The advent of high-definition digital television production and transmission will be enhanced by advanced home theater and theatrical digital presentation systems. Still photography is being transformed from an analog film-based technology into one that is native digital from the camera to the printer or display. This track will explore the future of digital imaging from image capture to final presentation in print, on screen, or in a theater.

Coordinators – Ray Whalen, CSU, Biomedical Science
Bob Gann, HP

Moderator, Pete Seel, CSU, Journalism and Technical Communications

**Session A
(two speakers)** “The Digital Era: What's New and What's Old “ - Rich Clarkson, Rich Clarkson Associates, Denver
“Seeing Like the Eye - Challenges in the Design of Digital Cameras” - Ross Allen, Consultant to HP Labs

Session B (panel) "If You Saw It - We Captured It" - Bob Gann, HP
["The World Through the Eyes of a Computer"](#) - Ross Beveridge, CSU, Computer Science
"Comments from a Color Separator - the Digital Transformation" - John Meyer, HP
"Relevance Feedback in Image Retrieval" - Mahmood Azimi, CSU, Electrical and Computer Engineering



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Track 4 - Digital Asset and Rights Management Room 214

As the number of media files increase exponentially with the proliferation of digital cameras, multiple digital audio formats, multimedia technology, and illustration/ pagination software, a pressing demand has been created for improved methods of digital asset management for these formats. Archived media files must be readily accessible to bona fide users on a global basis, while simultaneously protecting the rights of the copyright holder and preventing the piracy of these valuable assets. This presents a very difficult challenge for managing these assets now and in the future. Speakers will explore where this field stands today and what the next five years will bring.

Coordinators – Dana Heger, HP
Adele Howe, CSU, Computer Science

Moderator, Patrick McCarthy, CSU, Morgan Library

Session A (speaker) “Digital Rights Management and the Future of Digital Television” -
Michael Davis, CableLabs

Session B (panel) “Digital Assets in Higher Education: Challenges and Opportunities“
Brian Hawkins, Educause
Jill Koelling, Collaborative Digitization Program
Catherine Murray-Rust, CSU, Dean of University Libraries



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Track 5 - Future of Interoperable Networks: Wired and Wireless Room 220

The number of networked networks will increase dramatically in the coming decade as wireless wi-fi hot spots grow to include almost all public spaces in the developed nations of the world. Grid computing will be a key factor in the linking of wired networks to take advantage of economies of scale and tapping underutilized computer cycles for the benefit of all. This track will explore the future of wired and wireless technology in an era where high-speed connectivity to powerful networks will be a commonplace.

Coordinators – Bob Marcus, SRI
Edwin Chong, CSU, Electrical and Computer Engineering

Moderator, Dave Garrels, HP

Session A (speaker) ["The Immanet: Ubiquitous Computing, Always-On Connectivity, and What It Means for You"](#) - Peter Saint-Andre, Jabber Software Foundation

Session B (panel) ["The Adaptive EDGE: A Secure, Mobile, and Multi-service Network"](#) - Andre Kindness, HP
["Future Trends in Data and Voice Interoperability"](#) - John Powell, Software Defined Radio Forum



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Track 6 - Information Technology in Agricultural Sciences Room 203

In the last 100 years, overall agricultural production has increased due to technological developments that allow for a much greater production while utilizing less land. There are emerging information technologies (GPS, GIS, remote sensing) that have great potential to benefit the agricultural community by monitoring crops, soils, pests, livestock production and management, growth, and land development. Today producers are farming 24/7 using automated, GPS controlled tractors and applicators that cultivate fields with 1cm accuracy while farmers are crunching numbers on their computers to make better decisions. Likewise ranchers are keeping track of their vast herds using Identity-preserve to monitor movement of livestock to processed ag-products locally and across the globe. This track will explore and exhibit the new and upcoming IT applications in agriculture.

Coordinators – Mike Hanna, CSU, Agricultural Sciences
Debra Zimmerman, HP

Moderator, Raj Khosla, CSU, Soil and Crop Sciences

Session A (speaker) "The Role of Biometric Identification for Source Verification of Livestock" - Dr. Bruce Golden, Optibrand

Session B (speaker) "Utility Computing and Performance Management Within Agriculture" - John Picanso, Colorado Office of Innovation and Technology, Department of Agriculture



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Track 7 - Alternative Models of Computing North Ballroom

As the development of computing devices follows the self-fulfilling prophesy known as Moore's law (transistor density on integrated circuits doubles about every 18 months), two key challenges loom: whether/how the "law" will be sustained, and assuming that it is, what will its impact be. The challenges to sustaining Moore's law are economic (the cost of silicon foundries is increasing exponentially, so fabrication technology needs a fundamental paradigm shift), technological (how are we going to effectively design circuits with billions of devices), and the laws of physics (what nanoscale devices can be built, given the inherent limits of silicon). This track will present some of the emerging ideas about these issues.

Coordinators –

Wim Bohm, CSU, Computer Science
Bob Noller, HP
Tracy Schroth, HP
Pete Seel, CSU, Journalism and Technical Communications
Victor Walker, IBM

Moderator, Sanjay Rajopadhye, CSU, Computer Science

Session A (speaker)

"[Moore Myths 2005](#)" - Nick Tredennick, *The Gilder Report*

Session B (panel)

“Moore's Law and ‘The Future of the Flat World’”
Wim Bohm, CSU, Computer Science
John Crawford, Intel
Joe Czyszczewski, IBM
Bdale Garbee, HP
Nick Tredennick, respondent



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Biographies

Keynote Speaker

Ed Leonard, as the Chief Technology Officer for DreamWorks Animation SKG, Ed Leonard is responsible for the overall technical direction of the Company. During his tenure, he has spearheaded a number of advancements and innovations for DreamWorks Animation. Mr. Leonard oversaw the Studio's adoption of Linux, making DreamWorks Animation one of the first studios to fully embrace Linux as its core operating system for the production of animated films. DreamWorks Animation's smooth transition to Linux, associated cost savings and performance gains, were influential in other companies embracing Linux as their operating system.

Mr. Leonard also played a key role in setting up a state-of-the-art production pipeline at the DreamWorks Animation Glendale campus enabling DreamWorks Animation to make history by releasing two CG animated films in a single year. Those releases, "Shrek 2" and "Shrek 2", were nominated for Best Animated Feature by the Academy of Motion Picture Arts and Sciences and generated more than a billion dollars in worldwide box office receipts.

Prior to his ten year history in the entertainment industry, Mr. Leonard held several engineering positions in the aerospace industry specializing in visual and simulation systems research. He holds degrees in Computer Science/Math from Cal Poly Pomona.

Opening Plenary Session

John Crawford is an Intel Fellow, Digital Enterprise Group, investigating emerging technology directions and issues for future Itanium® Processor Family products. When Crawford joined Intel as a new college graduate in 1977, he worked as a software engineer developing software tools for Intel's 8086 processor; including the code generation phase of Intel's Pascal compiler for the 8086. In 1982, he became the Chief Architect for the Intel386™ microprocessor. He was responsible for defining the company's 32-bit architectural extensions to the already successful 8086/186/286 16-bit product line. In this capacity, he set the architectural direction and later participated in the design of the processor by leading the microprogram development and test program generation. Crawford made similar contributions as Chief Architect of the Intel486™ processor. Crawford co-managed the design of the Pentium® processor up through a successful product launch in 1993. Crawford headed the joint Architecture Research with Hewlett-Packard that developed the Itanium family architecture, Intel's 64-bit Enterprise product line. He has been involved with the Itanium family of products since its inception in 1994. In 1995, Crawford received the ACM/IEEE Eckert-Mauchly Award for contributions to computer and digital systems architecture. Crawford received the IEEE Ernst Weber Engineering Leadership Recognition in June 1997. He was elected to the National Academy of Engineering in 2002. Crawford received a bachelor's degree in Computer Science from Brown University in 1975, and a master's degree in Computer Science from the University of North Carolina, Chapel Hill, in 1977. Crawford holds 21 patents.



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Tony Frank, CSU Senior Vice President & Provost, received his bachelor's degree in biology from Wartburg College and his Doctor of Veterinary Medicine from the University of Illinois. Dr. Frank completed a Ph.D. and residencies in pathology and toxicology at Purdue University. He served on the faculty at Oregon State University before joining Colorado State in 1993, where he served as chairman of the Department of Pathology and Associate Dean for Research in the College of Veterinary Medicine and Biomedical Sciences. Dr. Frank was appointed as Vice President for Research and Information Technology at Colorado State in 2000 and served in that capacity until he assumed the role of Interim Provost in March, 2005. He was appointed to the position of Senior Vice President in July 2004 and in this role he is responsible for coordination of the academic core of the university.

Bdale Garbee, Open Source & Linux CTO, HP. As Open Source & Linux CTO, Bdale Garbee advises the CTOs of all other HP business units and other HP decision makers on technology and community aspects of Linux and Open Source applications. Mr. Garbee mentors internal communities on how to productively participate in the Open Source development process, and encourages the adoption of Open Source software and principles across the company. A contributor to the Free Software community for more than 25 years, Mr. Garbee's background also includes many years of hardware design, Unix internals, and embedded systems work. Mr. Garbee was an early participant in the Debian project. Mr. Garbee serves on the board of directors of Software in the Public Interest, and is a member of the Linux Journal Editorial Advisory Board, is a frequent speaker at Linux and Open Source conferences, and works closely with the Open Source community.



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Track 1 - Computer Security

Terry Escamilla is a Senior Technical Staff Member who started his career with IBM in Austin in 1991. While in Austin, Terry was a member of the AIX System Architecture team working in several areas including security, distributed systems management, and object technologies. He joined Haystack Labs in 1996 - a firm in Austin specializing in intrusion detection products. While working at Haystack, he authored the introductory book *Intrusion Detection: Network Security Beyond the Firewall*. After Haystack was acquired by Trusted Information Systems in 1998, Terry rejoined IBM to work on e-business strategy and architecture for IBM's Software Group Division in Boulder. After five years in SWG, he moved to a one year assignment as a security architect in IBM's Global Security Services. Terry is currently a member of the Security Strategy and Architecture team in the Office of the CIO. He has been in the computer industry since 1980, with activities ranging from consulting to teaching computer science at the high school and university levels. He has a B.S. in Psychology, and M.S. and Ph.D. degrees in Computer Science. His interests include computer security, cryptography, distributed systems, artificial intelligence, object technologies, and software engineering. When not in the office, Terry enjoys fly-fishing, backpacking, and hiking.

David Mahon has been with the FBI for more than 29 years, and since June of 2002 has been the Supervisory Special Agent of the Cyber Crime Program and the Crisis Management Coordinator for the Denver Division. The mission of the Cyber Crime Program is to investigate those federal violations in which the Internet, computer systems, or networks are exploited as the principal instruments or targets of terrorist organizations, foreign government sponsored intelligence operations, or criminal activity and for which the use of such systems is essential to that activity. Mr. Mahon entered on duty with the FBI in 1975. After completing training at the FBI Academy in Quantico, Virginia, he was assigned to the Organized Crime Squad in the Pittsburgh Division. In 1983, he was assigned to the San Juan Division to work Terrorism and White Collar Crime in the Caribbean and South America. In 1991, he was transferred to the Denver Division and assigned to investigate White Collar Crime matters. In June of 2001, he became the Supervisory Special Agent for the White Collar Crime Squad.

Dan Massey is an Assistant Professor at CSU. Dr. Massey received his doctorate in computer science from UCLA (2000) and also holds M.A in Applied Mathematics from UC San Diego (1993). Between 2000 and 2004, Dr. Massey worked as a Research Assistant Professor and Project Leader at the USC Information Sciences Institute. Dr. Massey has served as Principal Investigator on DARPA and NSF funded projects that related to large-scale networks and network security. In 2003, Dr. Massey's FMESH project on DNS Security was selected to appear in a DARPA video promoting successful achievements in the area of information assurance. Dr. Massey also served as co-editor of the DNS Security Extensions and has authored several papers on networking and security.

Aram Ossorio currently works as a Program/Project Manager working on projects in Human Resources and REWS including site security, loss prevention, and Data security. A Colorado native, Mr. Ossorio holds an AA in Business Information Systems, and a teaching Certification from CSU. He taught at Aims Community College for 8 years and has been working for HP for 12 years. Mr. Ossorio has held various positions including Corporate Email solutions, Secure ordering and site services.



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Indrajit Ray is an Assistant Professor in the Computer Science Department at CSU. He joined the faculty of Computer Science in August 2001. From fall 1997 to winter 2001 he worked as a tenure track faculty in the Computer and Information Science department at the University of Michigan-Dearborn. He teaches courses in computer networks, database systems and computer security. Indrajit's main research interests are in the areas of security models, database and network security and computer forensics. Some of his recent works involve developing secure transaction processing systems and designing secure and reliable fair-exchange protocols, anonymous protocols, and voting protocols. One of his current ongoing projects proposes a new model of trust for developing trustworthy systems from semi- or untrustworthy components and actors. A second ongoing project develops a model for predicting malicious attacks from the authorized insider. A third project addresses the survivability of long duration transactions in the face of malicious attacks. Indrajit's research is supported by the National Science Foundation, the Federal Aviation Administration and the U.S. Air Force Research Laboratory. He has served on the program committees of a number of national and international conferences. He is also the current chair of the IFIP TC-11 Working Group 11.9 on Digital Forensics.



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Track 2 - Working in the Global Environment – 2005-2010

Kirsten J. Broadfoot is an Assistant Professor in the Department of Speech Communication at Colorado State University. Kirsten is a native of New Zealand and has worked in New Zealand, Australia, Japan, the United Kingdom and the United States across educational, hospitality, manufacturing and hi-tech industries. Her interest in the communicative and organizing challenges and benefits of virtual workplaces emerged when working as a member of a HR based cross functional special projects team charged with the creation, training and maintenance of a virtual workforce for a local hi-tech company. Kirsten continues to explore this form of work personally and professionally through ongoing research into the changing nature of the contemporary workplace and workforce as well as classes designed to prepare students for technologically mediated and mobile workplaces.

Bob Bury is currently employed as a Development Manager in the R&D organization of HP's Software Global Business Unit. During his 25 years at Hewlett Packard, Mr. Bury has held a number of software development positions and R&D management positions responsible for the development of complex projects and systems as part of HP's Software, Workstations, and Enterprise Systems businesses. For two decades, Bob has led and worked as part of geographically distributed teams doing product generation, originally within the United States, and during the last decade, internationally distributed teams.

Carl Dierschow is Business Operations Manager in the HP Software Global Business Unit (SGBU) where he works for the Senior Vice-President of the software business. Carl received a BS in Electrical Engineering & Computer Science from the University of Colorado. He was born and raised in Colorado and spent two and a half years in Australia setting up a new software business for HP. He has been a professional coach in HP for 5 years. Mr. Dierschow had done research on virtual teams, manages virtual teams, has created a website on virtual teams, and is used as a resource by HP employees on virtual teams.

Trudy Haines is Vice-President of Human Resources for Hewlett-Packard's Software Global Business Unit (SGBU) and has 25 years of experience in HR. HP's Software business consists of several businesses including OpenCall and OpenView brands and has over 3000 employees in teams at sites in over 20 countries in all regions of the world and has remote employees in over 120 locales. HR's role is to ensure managers and teams can work together cross culturally; can manage projects virtually; managers are equipped to build a sense of team and commitment across time zones, countries and cultures, etc. She also personally manages an HR team with members from 8 different countries.

Jackie Hartman, Ph.D., is an Associate Professor in the College of Business at Colorado State University where she specializes in management and organizational communication. She is a consultant for corporate and government clients and leads workshops in organizational and strategic communication, communication styles, organizational protocol, executive etiquette, effective presentations, and human resource development.



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Mike Myshatyn is the Global Engineering Relationship Manager for HP's Management Software Business (MSB) Division (formerly known as OpenView). He has been with HP for 26 years, serving as an R&D manager for 22 of those years. In the last 16 years, Mike has been doing both hardware and now software development, working on global resource strategy and then coming up with effective partnerships and plans to execute that strategy, and also manages the ongoing business relationships with global R&D teams in India, China and Russia. Instrumental in setting up MSB's first Indian cross-cultural training within R&D to improve organizational effectiveness, Mr. Myshatyn travels extensively around the world to understand partner capabilities and limitations, and improve partner effectiveness. Mike speaks English, Ukrainian, German, some Russian, some Japanese and some Hindi.

Dave O'Callaghan is the Vice President of Sales for the Commercial West Area for Cisco Systems. He oversees sales, administrative, and systems engineering staffs in a thirteen state area for Cisco's Commercial business. He was previously Vice President of the Western Region for Hitachi Data Systems. Dave is a Commissioner on the Governor's Commission on Science and Technology, assisting Governor Bill Owens in leading Colorado into the 21st century in terms of technology. The work includes driving up educational capability within Colorado, and rolling out technology initiatives that will benefit the Colorado general public.

Robin (Stormy) Peters manages the Open Source Program Office at Hewlett-Packard. Ms. Peters has been with HP in Fort Collins for nine and a half years. During that time Robin managed a team of engineers in the U.S. and Brazil responsible for delivering manageability and clustering solutions, directed development of a new desktop solution (GNOME) for HP-UX and decreased overall spending on the desktop software, and worked as program manager delivering server consolidation projects developed by Hitachi to meet the customer manageability needs to HP manufacturing. Currently, she works globally, traveling to Asia and Europe talking about open source software to HP customers and partners.

Heinrich Schwarz, Assistant Professor, Department of Communication, University of Colorado at Boulder. Heinrich's research focuses on social and cultural dimensions of emerging information and communication technologies and on ethnographic research methods. Recent research projects investigate mobile, flexible, and virtual forms of work, transformations of office concepts, and shifts in advertising work practices. Heinrich has collaborated with a number of firms, including AT&T, Intel, Apple, HP, and Lotus Development, on studies of work practices and technology design and use. Currently he finds increasingly fascinating the potential of a new breed of mobile and location-aware technologies. Heinrich received his Ph.D. in Science & Technology Studies from Massachusetts Institute of Technology and previous degrees from UC Berkeley and the Free University in Berlin, Germany.

Wendy True-Zuschneid has worked in various Human Resources roles for the past twenty years. Before moving to Fort Collins she was an HR Manager at San Jose State University. Wendy has worked for Agilent (and formerly HP) for almost 8 years. Her current role at Agilent as a Management Support Consultant allows her split up her workweek between her home office and her on-site office in Loveland. Wendy's manager is in California and her co-workers are all over the country. Working remotely is now the norm for her and many other Agilent employees.



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Track 3 - Digital Imaging

Ross R. Allen is the former manager of the Color Imaging & Printing Technologies Department at HP Laboratories in Palo Alto, California. From 1989 until taking early retirement in 2002, Dr. Allen worked at HP Labs managing the research and development of advanced technologies for HP's Imaging and Printing businesses. This included investigation of advanced inkjet inks, page-wide array inkjet printheads, invention and development of the HP CapShare handheld document scanner, sensors for ultra-precise paper advance, print media type identification, toner-level measurement and new processes for book and booklet making. Ross has been granted 25 U.S. Patents. He now works as a contractor for HP's Imaging and Printing Group on future inkjet technology strategies and technology communications. He is an active contributor to HP's "Science of Printing" Campaign.

Dr. Allen studied at the University of California at Davis, earning B.S., M.S., and Ph.D. degrees in mechanical engineering. His specialization is system dynamics, simulation and control, fluid mechanics, and machine design. In 1996, he received the Distinguished Engineering Alumni Award from the UCD College of Engineering and the Certificate of Excellence from the UCD Alumni Association for career achievements and continuing service to the University. Prior to joining HP, Ross was an assistant professor at the School of Engineering at the University of California, Los Angeles (UCLA), where he taught and conducted research in system dynamics, dynamics and control systems, and was a consultant to the aerospace industry.

Mahmood Azimi is professor in the Electrical and Computer Engineering Department at Colorado State University (CSU) where he also serves as the director of the Digital Signal/Image Laboratory. Dr. Azimi's main areas of interest include: digital signal and image processing, target detection, classification and tracking, adaptive filtering and system identification, and neural networks. He has taught various undergraduate and graduate level courses in these areas for the past twenty two years. He is the co-author of the book "Digital Filtering in One and Two Dimensions", Plenum Press, 1989. He is also writing a new textbook on Digital Image Processing (DIP), which is scheduled to be published in Summer 2007. Dr. Azimi received his M.S. and Ph.D. degrees from the Imperial College of Science & Technology, University of London, England in 1978 and 1982, respectively, both in Electrical Engineering with specialization in Digital Signal/Image Processing.

Ross Beveridge works on Computer Vision, emphasizing problems relating to object recognition. Current interests include evaluation methodology and the evaluation of human face recognition algorithms in particular. Optimal matching of geometric features using local search and genetic algorithms remains a long standing interest, as are ways of combining computer graphics and vision techniques to enhance object recognition performance. Dr. Beveridge is also part of the CSU team that developed a compiler that maps high level language descriptions of image processing codes to "circuits" that may then be run on adaptable computing hardware.



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Rich Clarkson, Rich Clarkson and Associates. After a career in magazine and newspaper photojournalism as administrator, editor and photographer, Rich Clarkson founded Denver-based Rich Clarkson and Associates in 1987 for the creation and management of projects based in various uses of fine photography. He has co-authored six books and his Denver company has produced 22 books. The company does all the photography of the 88 national championships of the National Collegiate Athletic Association (for whom they also produce exhibitions and books), all the original photography and publishing for the Colorado Rockies baseball team and the Denver Broncos football team. The group also organizes three high-level photographic workshops for professionals and advanced amateurs, concentrating on creativity and high quality in digital format. Clarkson's career includes stints as director of photography and senior assistant editor of the National Geographic Society, assistant managing editor of *The Denver Post*, director of photography of *The Topeka Capital-Journal*, and as contract/ contributing photographer to *Sports Illustrated*.

Robert (Bob) Gann is a master engineer in the HP Digital Camera and Scanner (Image Capture) Group and focuses on advanced image processing technologies, image quality and future technology directions for HP digital image capture devices. He has worked in the area of digital image capture quality for more than 15 years. Dr. Gann's focus is on the area of captured image quality with a primary focus on scanners and digital cameras, but always from a system and customer solution view.

Dr. Gann is the author of *Desktop Scanners: Image Quality Evaluation* (ISBN 0-13-080904-7) as well as three previous scanner image quality books and has contributed to several other books published by HP over the years. Dr. Gann interacts regularly with the technical press and scientific community both inside and outside Hewlett-Packard and has been presenting technical seminars about digital imaging for about 13 years. He has more than 15 patents with several pending.

John Meyer, is Director of the Hardcopy Technologies Laboratory (HTL) at HP Labs. Dr. Meyer's HTL labs research interests embrace all elements of imaging systems, from image capture to the development of color image processing algorithms and development of new user-oriented technologies to enhance and simplify the user's experience with imaging systems and processes. After joining HP Labs in 1979, Meyer helped translate processes he developed while managing pre-press operations into the colorimetrically based color reproduction practiced today on the office/home desktop. Dr. Meyer is on the board of the Society for Imaging Science and Technology (IS&T) and is a member of the Faculty Advisory Board for the Center of Imaging Science, Rochester Institute of Technology. Dr. Meyer received his PhD in experimental low-temperature physics at the University of Southern California.



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Track 4 - Digital Asset and Rights Management

Michael Davis is the Project Director for OpenCable™ Business Relations at Cable Television Laboratories, Inc. (“CableLabs®”) in Louisville, CO. He is responsible for directing CableLabs’ review and approval process for new digital output, recording, copy protection and digital rights management technologies for use by the cable TV industry. In addition, Mr. Davis directs product developers participating in the “OpenCable™” project -- a cable television industry initiative managed by CableLabs that enables advanced, interactive digital cable products to be manufactured by consumer electronics companies creating innovative digital products for retail. Mr. Davis also manages the vendor licensing program for OpenCable, in coordination with FCC regulations, cable operator business and technical directives, product conformance testing, and compliance with content handling rules for copy-protected video programming on the cable network. Before joining CableLabs, Mr. Davis was responsible for negotiating OEM software licensing agreements for Lucent Technologies. Prior to working for Lucent, he worked at Echostar Communications Corporation, directing the supply chain and procurement department, and directing international and domestic product development projects. Mr. Davis is a third-year law student at the University of Denver, Sturm College of Law. He received a Master’s degree in Public Administration from the University of Colorado, Colorado Springs, Graduate School of Pubic Affairs, and a Bachelor’s degree in Electronics Engineering from DeVry Institute of Technology.

Brian Hawkins is president of EDUCAUSE, a professional association of more than 1,900 colleges, universities, and organizations dedicated to transforming higher education through information technologies. Prior to joining EDUCAUSE, Dr. Hawkins was senior vice president for Academic Planning and Administrative Affairs at Brown University. Before going to Brown, Dr. Hawkins was associate vice president for Academic Affairs at Drexel University where he was responsible for developing the first academic program in the nation to require access to a microcomputer. He received his bachelor’s and master’s degrees from Michigan State University and his doctorate from Purdue University. He taught at The University of Texas at San Antonio (UTSA) and served there as department chairman and assistant dean of the College of Business.

Jill Koelling is Executive Director of the Collaborative Digitization Program, an organization committed to fostering access to cultural, historical and scientific heritage collections of the West by building collaboration between archives, historical societies, libraries and museums. Before joining the Collaborative Digitization Program, Ms. Koelling was Curator of Visual Materials at Cline Library, Northern Arizona University where she put her digital expertise to work increasing digital production and adding digital content to the Colorado Plateau Digital Archive. Prior to her work at the Cline Library, Ms. Koelling was Curator of Photographs and Head of Digital Imaging at the Nebraska State Historical Society where she established the first digital imaging laboratory operated by a regional conservation center. Ms. Koelling attended Montana State University where she attained a BA in Media & Theatre Arts, Photography. She later earned a MA in Museum Studies from the University of Nebraska.



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Catherine Murray-Rust is Dean of University Libraries at Colorado State University. Prior to joining CSU, Murray-Rust was Associate University Librarian for Public Services and Innovative Technology at Oregon State University where she served as the senior administrator for the reference department, access services department, library technology department, university archives and records, special collections, the Guin Library, and the digital library development program. Prior to her tenure at Oregon State, she served for 21 years in reference services and library administration at Cornell University where her responsibilities included overseeing public services, information technology development, program planning, public relations and fundraising. Ms. Murray-Rust graduated with a Bachelor of Arts degree from Mount Holyoke College and holds her graduate diploma in Library and Information Studies from the University of London.



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Track 5 - Future of Interoperable Networks: Wired and Wireless

Andre Kindness handles Product Management for ProCurve Networking by HP. Guiding the strategic direction and solution definition of the ProCurve mobility and security solution portfolio, Kindness is responsible for working throughout the product life-cycle from conception through introduction to evolution. Mr. Kindness joined HP in 2000 as a Business Planner where he balanced business risks and rewards while developing new processes and IT infrastructure to further enable ProCurve's industry leading price points. Mr. Kindness holds a Bachelor of Science in Mechanical Engineering and Material Science and Engineering from University of California, Davis as well as a Bachelor of Science in Aeronautical Science and Engineering, also from University of California, Davis.

John Powell received his BSEE from the University of California Berkeley and coordinated UC's statewide police communications system for over 25 years. He is a past international president and life member of APCO, a founding member of the Project 25 Steering Committee, and a member of the California Legislature's Joint Committee on Fire, Police, Emergency and Disaster Services. John currently chairs the Interoperability Subcommittee for NPSTC and its Software Defined Radio (SDR) Working Group, as well as the California Statewide Interoperability Executive Committee. He is a member of the SAFECOM Executive Committee and the SDR Forum Board of Directors. Since leaving the University of California in 2002, he has been employed as a Senior Consulting Engineer for agencies within the US Departments of Justice and Homeland Security, and for the Executive Office of the President of the United States on issues related to public safety interoperability, broadband equipment and standards, and SDR.

Peter Saint-Andre has been involved with the Jabber/XMPP open instant messaging community since late 1999 and has made significant contributions to Jabber protocol design, documentation, and adoption. His roles include Executive Director of the Jabber Software Foundation, document editor of the XMPP RFCs, Chair of the Jabber Council for 2004-2005, managing editor of the JSF's standards process, and author of countless XMPP protocol extensions. He also writes the Jabber Journal and keeps a web log, which is syndicated at Planet Jabber.



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Track 6 - Information Technology in Agricultural Sciences

Bruce Golden is a member of the board, and the Chief Executive Officer of Optibrand Ltd., LLC. Optibrand was founded in 1998 by Dr. Golden and two other Colorado State University professors who developed a biometric method for Secure Source VerificationTM of livestock. He was a full professor of Animal Genetics and Breeding and on the faculty for 19 years. While at CSU he was the founder of the Center for Genetic Evaluation of Livestock, the largest provider of genetic evaluations for beef breed organizations and beef breeding companies in North America. He has been recognized for his innovative research in genetic analysis and currently holds the title of Professor Emeritus. He is also an affiliate faculty member. He has extensive international experience in livestock production including working in China, Brazil, Venezuela, New Zealand, the UK, Canada and Australia. Dr. Golden attended Washington State University in Pullman, WA, where he received both Bachelor of Science and Masters degrees in Animal Science. Dr. Golden received his Doctorate degree in Animal Breeding and Genetics from Colorado State University in Fort Collins, CO.

John Picanso, Chief Information Officer for the State of Colorado. John Picanso is responsible for leading the Office of Innovation and Technology; monitoring trends and advances in communication and information resources and data processing; coordinating the statewide IT planning and budgeting processes; and developing policies and procedures for statewide IT standards. Picanso has been with the Department of Agriculture for nearly seven years. His duties included leading technology development efforts in the areas of Homeland and agrosecurity; preparedness and response, livestock disease surveillance, data collaboration and integration, and risk assessment and mitigation. Prior to joining the Department, Picanso worked for USDA/APHIS, Veterinary Services serving 13 western states, and was a research associate at the School of Veterinary Medicine, University of California, Davis.



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Track 7 - Alternative Models of Computing

Wim Bohm is a Computer Science professor at Colorado State University. Before coming to Colorado in 1990, he worked with the Manchester Dataflow Project. After working in the Algol 68 compiler team at the Mathematical Center Amsterdam, Wim received his PhD in 1984 at Utrecht University, Holland. His research is in design and implementation of high level languages for specific application domains, such as Image and Signal Processing, to execute on Reconfigurable hardware.

John Crawford is an Intel Fellow, Digital Enterprise Group, investigating emerging technology directions and issues for future Itanium® Processor Family products. When Crawford joined Intel as a new college graduate in 1977, he worked as a software engineer developing software tools for Intel's 8086 processor; including the code generation phase of Intel's Pascal compiler for the 8086. In 1982, he became the Chief Architect for the Intel386™ microprocessor. He was responsible for defining the company's 32-bit architectural extensions to the already successful 8086/186/286 16-bit product line. In this capacity, he set the architectural direction and later participated in the design of the processor by leading the microprogram development and test program generation. Crawford made similar contributions as Chief Architect of the Intel486™ processor. Crawford co-managed the design of the Pentium® processor up through a successful product launch in 1993. Crawford headed the joint Architecture Research with Hewlett-Packard that developed the Itanium family architecture, Intel's 64-bit Enterprise product line. He has been involved with the Itanium family of products since its inception in 1994. In 1995, Crawford received the ACM/IEEE Eckert-Mauchly Award for contributions to computer and digital systems architecture. Crawford received the IEEE Ernst Weber Engineering Leadership Recognition in June 1997. He was elected to the National Academy of Engineering in 2002. Crawford received a bachelor's degree in Computer Science from Brown University in 1975, and a master's degree in Computer Science from the University of North Carolina, Chapel Hill, in 1977. Crawford holds 21 patents.

Joe Czynszewski is a Distinguished Engineer and Master Inventor with IBM's Systems and Technology Group in Boulder Colorado. He joined IBM in 1977 and holds BS and MS degrees in Electrical Engineering. Joe has enjoyed working in a variety of IBM locations and divisions including an international assignment in Germany and currently specializes in printing and scanning. He serves as an Extreme Blue internship champion, Innovation Catalyst, On Demand Technical Leader, and on IBM Boulder's Technical Vitality Council.

Bdale Garbee, Open Source & Linux CTO, HP. As Open Source & Linux CTO, Bdale Garbee advises the CTOs of all other HP business units and other HP decision makers on technology and community aspects of Linux and Open Source applications. Mr. Garbee mentors internal communities on how to productively participate in the Open Source development process, and encourages the adoption of Open Source software and principles across the company. A contributor to the Free Software community for more than 25 years, Mr. Garbee's background also includes many years of hardware design, Unix internals, and embedded systems work. Mr. Garbee was an early participant in the Debian project. Mr. Garbee serves on the board of directors of Software in the Public Interest, and is a member of the Linux Journal Editorial Advisory Board, is a frequent speaker at Linux and Open Source conferences, and works closely with the Open Source community.



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Dr. Nick Tredennick is Editor of the *Gilder Technology Report*. Dr. Tredennick was named a Fellow of the IEEE for his contributions to microprocessor design. He is on the editorial advisory board for several technical publications including *IEEE Spectrum* and *Microprocessor Report*. He has over thirty years experience in computer and microprocessor design, holds nine patents, and has more than fifty technical publications, including a textbook on microprocessor design (*Microprocessor Logic Design*). He was a Senior Design Engineer at Motorola, a Research Staff Member at IBM's Watson Research Center, and Chief Scientist at Altera. He has taught at the University of Texas at Austin and the University of California, Berkeley. He is an IEEE representative to the Engineering Accreditation Commission (EAC), which oversees university accreditation for all engineering programs.



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