climate change and IT

visions of the future

assistive technologies

augmented reality

Google Apps™

pervasive technologies

consumer cloud

cloud computing

YOUR future

HP Skyroom™

famous games

ubiquitous computing

Web futures

Serious Games

hypermedia

future of games

location-aware devices

privacy in the cloud

World of Warcraft™

Double Fine™ games

expanded human senses

dynamic infrastructure

HCI futures

virtualization

ICT futures

immersive environments

academic cloud

singularity

accessibility

data centers

telepresence

Moore's law

virtual world cultures

human-computer interaction

brain-computer interface

gaming social networks

FUTURE VISIONS SYMPOSIUM

Friday, April 2, 2010 ▪ 8:30 a.m.-4:00 p.m.

Lory Student Center

The third biennial FutureVisions Symposium is an exciting free conference on the future of information and communication technology for students, faculty, government officials, and industry professionals.

Co-sponsored by the Information Science and Technology Center (ISTeC) and Google, Hewlett-Packard, Rogue Wave Software, and Telvent.

For detailed program and schedule, visit:

futurevisions.colostate.edu

ISTeC *Information Science & Technology Center*

Colorado State University

The 3rd Biennial FutureVisions Symposium

Friday April 2, 2010

Lory Student Center, Colorado State University

FutureVisions Symposium Objective – Provide a look into the near future (2010-2020) of Information and Communication Technology (ICT) to give CSU students and other conference attendees a preview of trends in cutting-edge and high-growth areas in ICT and related fields.

Welcome Reception – 8:30 – 8:50 a.m. – Coffee, tea, and pastries in the Mid - East Ballroom

Opening General Session: Previews of the Future – 9:00 – 9:50 a.m. (Mid - East Ballroom).
Welcome, Dr. William Farland, CSU Vice President for Research
Three speakers from the symposium tracks will comment on their visions of the future of ICT.

Three Breakout Tracks – session A from 10:00 – 10:50 a.m., session B from 11:00 – 11:50 a.m., and session C from 2:00 – 2:50 p.m. (see next page for more details and room locations)

Track 1) The Future of Cloud Computing: Cloud Computing Overview: Present and Future; Cloud Computing in the Consumer Environment; Cloud Computing in the Corporate Environment.

Track 2) The Future of Human-Computer Interaction: Ubiquitous Computing; Accessibility and Assistive Technologies; Immersive and Augmented Environments.

Track 3) The Future of Games: Games and Social Networks; The Future of Game Design; Games as a Teaching and Learning Tool.

Lunch – 11:50-1:00 p.m. – your choice in Lory Student Center food court, main level.

Keynote Presentation – 1:00-1:50 p.m. (Mid - East Ballroom)

Climate Change: Is I.T. part of the problem or part of the solution?

Dennis Bushnell, Chief Scientist, NASA Langley Research Center. This session will explore the complex interrelation of information technology and renewable energy generation in terms of mitigating negative aspects of climate change. Data centers and ubiquitous computer networks are massive global consumers of electrical power and this demand increases yearly. How might I.T. and renewable energy sources be utilized to provide a future that is less dependent on burning fossil fuels? Dennis Bushnell is a leading NASA scientist who has worked on the Gemini, Apollo, and Space Shuttle projects. He is an expert on energy and information/communication technology futures.

Closing Keynote Session – 3:00-4:00 p.m. (Mid - East Ballroom)

Web 10.0: The Future of Information and Communication Technology

Thomas Frey, Executive Director of the DaVinci Institute, will present his vision of how the Web and the Internet may evolve over the next two decades. He is a leading global futurist who consults with AT&T, Boeing, Direct TV, First Data, Hewlett-Packard, Nokia, and Qwest, among other clients. Before launching the DaVinci Institute, he spent 15 years at IBM as an engineer and designer where he specialized in human factors.

Closing Remarks – 4:00-4:10 p.m. Dr. H.J. Siegel, ISTeC Director

With appreciation to our 2010 sponsors:
Google, Hewlett-Packard, Rogue Wave, and Telvent

FutureVisions Symposium -- Breakout Sessions

Tracks ►	**1) The Future of Cloud Computing**	**2) The Future of Human-Computer Interaction**	**3) The Future of Games**
Moderators **Sessions ▼**	**John Plotnicki,** Computer Information Systems Department, College of Business.	**Asa Ben-Hur,** Computer Science Department, College of Natural Sciences.	**Cathy Cranston,** Morgan Library.
Session A – 10:00 – 10:50 a.m.	**Cloud Computing Overview** Cherokee Park Room **Richard Katz,** EDUCAUSE Topic – ***The Tower and the Cloud: Higher Education in the Age of Cloud Computing***	**Ubiquitous Computing** Room 230 **Michael Eisenberg,** CU Topic – ***Curiouser and Curiouser: Potential Futures for Educational Technology*** **Katie Siek,** CU Topic – ***Wielding Technology's Wonders to Improve Healthcare***	**Games and Social Networks** East Ballroom **Jeff Snodgrass,** CSU Topic – **Virtually Shamans: Fantasy Immersion, Social Ties, and the Therapeutics of World of Warcraft** **Eric Hackathorn,** NOAA Topic –***Serious Games***
Session B 11:00 – 11:50 a.m.	**Cloud Computing in the Consumer Environment** Cherokee Park Room **Vijay Bangaru,** Google Topic – ***Google in the Cloud: Present and Future*** **Dennis Gannon,** MicrosoftTopic – ***Redefining Scholarly Research using Cloud Computing Technology***	**Accessibility/ Assistive Technology** Room 230 **Chuck Anderson**, CSU Topic – ***Translating Thoughts into Actions: The Potential for a Brain-Computer Interface.*** **Chris Stockinger,** Logisens. Topic – ***Ubiquitous Sensors: Robust Interface for Physiological User Data.***	**The Future of Game Design** East Ballroom **Nathan Martz** – Double Fine Entertainment Topic – ***Future of Game Design*** **Scott Leutenegger**, DU Topic – ***Humane Games***
Session C – 2:00 - 2:50 p.m.	**Cloud Computing in the Corporate Environment** Cherokee Park Room **Beth Boettcher,** Accenture Topic – ***How to Move to the Cloud to Accelerate Business Results*** **Bruce Otte,** IBM Topic – ***Building a Smarter Planet: The New Economics and Reality of Cloud Computing***	**Immersive/ Augmented Environments** Room 230 **Bruce Blaho,** Hewlett-Packard Topic – ***Personal Telepresence***	**Teaching Programming with Games** Room 222 **Becky Knips** – Lesher IB Middle School Topic – ***Using Game Design as a Method for Teaching Programming to Middle School Students*** **Ben Johnson,** Poudre School District Topic – ***Got Game? Teaching Problem Solving and Critical Thinking with Computer Game Programming***

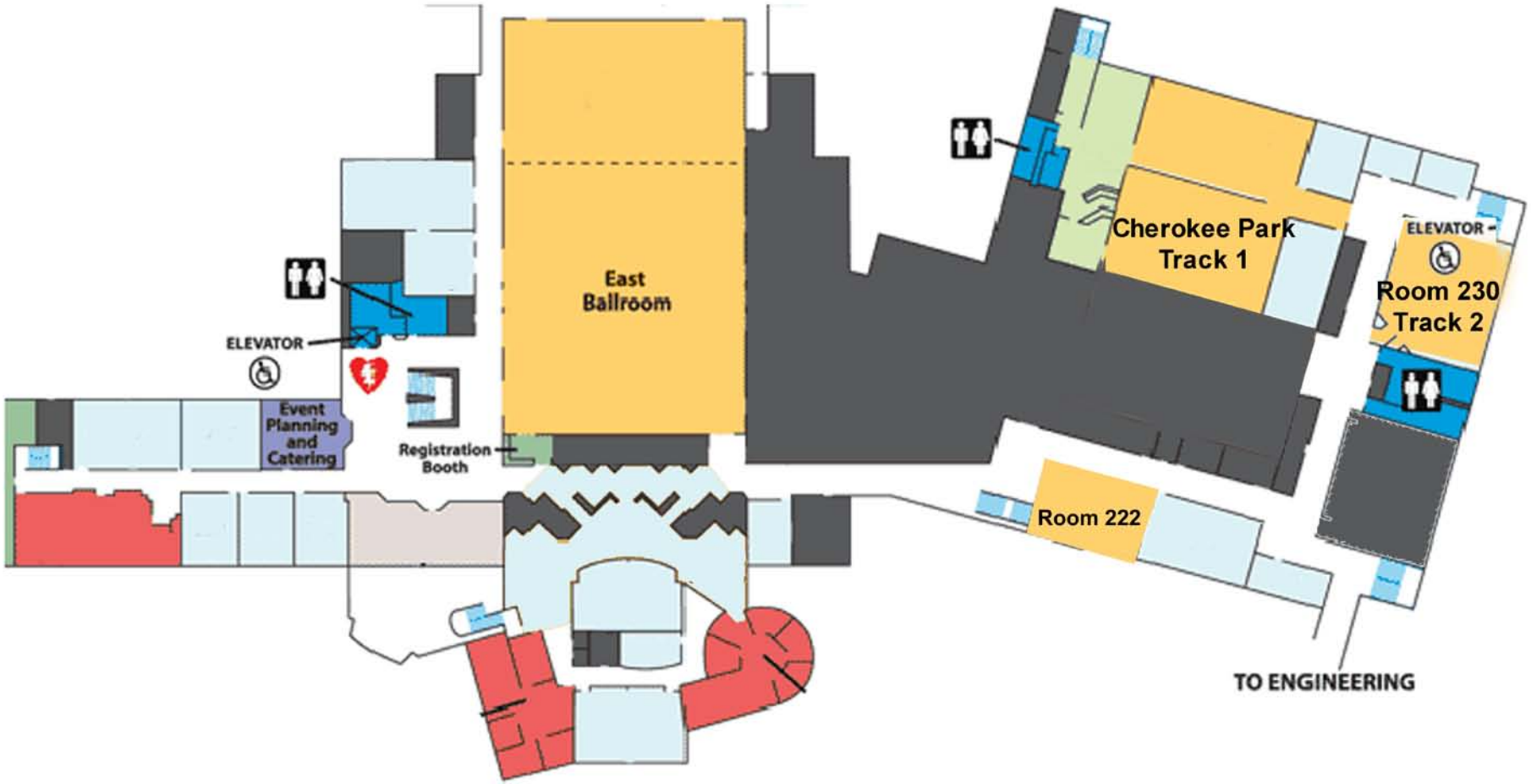
Session details and speaker biographies follow…

Track 1 - Cherokee Park - The Future of Cloud Computing

Track 2 - Room 230 - The Future of Human Computer Interaction

Track 3 - East Ballroom/Room 222 - The Future of Games

UPPER LEVEL



Program Details

General Sessions

Opening Session: 9:00-9:50 a.m. -- East Ballroom

Welcome – Dr. William Farland, CSU Vice President for Research

Conference Overview and Previews of the Future of ICT

Moderated by **Pete Seel**, FutureVisions Symposium Chair

Richard Katz, Vice President, EDUCAUSE.

Bruce Blaho, HP Fellow, Hewlett-Packard.

Nathan Martz, Lead Programmer, Double Fine Entertainment.

Keynote Session: 1-2 p.m. -- East Ballroom

Climate Change: Is I.T. part of the problem or part of the solution?

Dennis Bushnell, Chief Scientist, NASA Langley Research Center. This session will explore the complex interrelation of information technology and renewable energy generation in terms of mitigating negative aspects of climate change. Data centers and ubiquitous computer networks are massive global consumers of electrical power and this demand increases yearly. How might I.T. and renewable energy sources be utilized to provide a future that is less dependent on burning fossil fuels? Dennis Bushnell is a leading NASA scientist who has worked on the Gemini, Apollo, and Space Shuttle projects. He is an expert on information and communication technology futures.

Closing Keynote: 3-4 p.m. -- East Ballroom

Web 10.0: The Future of Information and Communication Technology

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Closing Remarks: 4:00-4:10 p.m. -- East Ballroom

Dr. H.J. Siegel, ISTeC Director

The Future of Cloud Computing – Track 1

All sessions moderated by **John Plotnicki**, Computer Information Systems Department, CSU

Session 1-A: 10:00 – 10:50 a.m.

Cloud Computing Overview: Present and Future

Cherokee Park Room

Richard Katz, Vice President of EDUCAUSE.

Title: ***The Tower and the Cloud: Higher Education in the Age of Cloud Computing***

Richard Katz has been vice president of EDUCAUSE since 1996. In 2001, he founded the EDUCAUSE Center for Applied Research (ECAR), now the largest research service devoted exclusively to IT issues in higher education. Before joining EDUCAUSE, he held a variety of management and executive positions spanning 14 years at the University of California. He is the author, co-author or editor of seven books, four research studies, and more than 70 articles and monographs on a variety of management and technology topics. He received his B.A. from the University of Pittsburgh, and his M.B.A. from UCLA.

Session 1-B: 11:00 – 11:50 a.m.

Cloud Computing in the Consumer Environment

Cherokee Park Room

Dennis Gannon, Director of Applications for the Cloud Computing Futures, Microsoft Research, Redmond, Washington.

Title: ***Redefining Scholarly Research using Cloud Computing Technology***

Dennis Gannon works in the new eXtreme Computing Group at Microsoft Research. Prior to coming to Microsoft, he was a professor of Computer Science at Indiana University and the Science Director for the Indiana Pervasive Technology Labs and, for seven years, and Chair of the Department of Computer Science. Gannon has published over 100 refereed articles and co-edited 3 books. He received his Ph.D. in Computer Science from the University of Illinois Urbana-Champaign in 1980 after receiving a Ph.D. in Mathematics from the University of California, Davis.

Vijay Bangaru, Product Manager, Google Docs Team, Google Inc., Mountain View, California.

Title: ***Google in the Cloud: Present and Future***

Vijay Bangaru is a Product Manager on the Google Docs team. Previously at Google, he ran core infrastructure teams for storage, object transport, indexing and crawling. Prior to Google, he worked at Microsoft where he drove product strategy and led development teams for SQL Server, WinFS and the .NET Framework. He holds bachelor's degrees in computer engineering and electrical engineering from Washington University of St. Louis, where he graduated summa cum laude.

Session 1-C: 2:00 – 2:50 p.m.

Cloud Computing in the Corporate Environment

Cherokee Park Room.

Beth Boettcher, Senior Manager, Accenture Technology Group

Title: *How to Move to the Cloud to Accelerate Business Results*

Beth Boettcher is a Senior Manager and is the Software-as-a-Service (SaaS) Practice Financial Services Lead responsible for growing Accenture's SaaS enterprise footprint within Financial Services companies globally. She has over 12 years of experience building and deploying large-scale integrated CRM solutions to enable clients to drive revenue growth. She graduated from Southern Methodist University with a Bachelors of Business Administration in Marketing.

Bruce Otte, Senior Marketing Executive, IBM

Title: *Building a Smarter Planet - the New Economics and Reality of Cloud Computing*

Bruce Otte is a Senior Marketing Executive working for the worldwide marketing team of the IBM Cloud Computing Initiative. Mr. Otte's responsibilities include understanding the market, helping shape the portfolio requirements for cloud computing across all of the IBM brands, and communicating IBM's message and offerings on cloud computing. Mr. Otte is a founding member of the IBM Cloud Computing Messaging Architecture Board.

The Future of Human-Computer Interaction - Track 2

All sessions moderated by **Asa Ben-Hur**, Department of Computer Science, CSU.

Session 2-A: 10:00 – 10:50 a.m.

The Future of Ubiquitous Computing

Room 230

Mike Eisenberg, Professor in the Department of Computer Science and Institute of Cognitive Science, University of Colorado, Boulder.

Title: *Curiouser and Curiouser: Potential Futures for Educational Technology*

Historically, "educational technology" has been equated, in the popular imagination, with "classroom computing". This is a radically incomplete picture in two ways: the most interesting opportunities for education are outside the classroom, and the most interesting technologies extend beyond the classic desktop or handheld computer. This talk will discuss a variety of plausible future developments in the design and use of educational technology.

Mike Eisenberg and his wife Ann Eisenberg co-direct the Craft Technology Laboratory at CU. The focus of the lab's research is in blending novel technologies with educational craft activities for children. Mike Eisenberg is a President's Teaching Scholar at CU, and in 2010 received the University's prestigious Thomas Jefferson Award. (Craft Technology Lab website: www.cs.colorado.edu/~ctg)

Katie Siek, Assistant Professor of Computer Science, University of Colorado at Boulder

Title: *Wielding Technology's Wonders to Improve Healthcare*

Dr. Siek will briefly explore the current state of health information technology - from personal health monitoring to medical records and decision support systems. She will examine how authoritative (e.g., electronic medical records) and informal data streams (e.g., social networking site data) could be combined to provide a better understanding of personal health and potentially improve quality of care. She will present a vision of future health information technology where people interact and visualize health data easily in their everyday lives and can share data with healthcare professionals for personalized feedback.

Katie Siek leads the Wellness Innovation and Interaction Lab at CU. She researches how sociocentric technology interventions affect personal health and well-being. Most recently, she received a National Science Foundation CAREER award and a Scottish Informatics and Computer Science Alliance Distinguished Visiting Fellowship. Dr. Siek completed her Ph.D. and M.S. at Indiana University - Bloomington in computer science and her B.S. in computer science at Eckerd College. (More information: http://www.cs.colorado.edu/~ksiek)

Session 2-B: 11:00 - 11:50 a.m.

Accessibility/ Assistive Technology

Room 230

Chuck Anderson, Professor of Computer Science, Colorado State University

Title: *Translating Thoughts into Actions: The Potential for a Brain-Computer Interface*

Brain-computer interfaces (BCIs) are hardware and software systems that allow users to interact with computer applications by changing their mental activity, which causes variations in weak electrical voltages produced by the brain. The long-term goal of BCI research is a new mode of communication for subjects with diseases and injuries resulting in the loss of voluntary muscle control, such as amyotrophic lateral sclerosis (ALS), multiple sclerosis, high-level spinal cord injuries or severe cerebral palsy. BCIs could provide a new way for users to communicate with their caregivers and to control devices such as televisions, wheel chairs, speech synthesizers and computers.

Chuck Anderson received a Ph.D. in Computer Science from the University of Massachusetts, Amherst, in 1986, after which he worked for four years at GTE Laboratories in a machine learning research group. Since 1991 he has been a faculty member in the Department of Computer Science at Colorado State University. His research projects involve applications of machine learning to problems in modeling, classification, prediction, and control.

Chris Stockinger, co-founder of Logisens Corporation.

Title: *Ubiquitous Sensors: Robust interface for physiological user data*

Chris Stockinger presents an innovative, simple interface to precisely measure physiological data. This is accomplished without strapping sensors on users, so they can move freely through work and play. Any peripheral can carry these interfaces: mouse, game consoles, cell phones, steering wheels, etc. These potentially ubiquitous sensors enhance the human/machine interface by adding new context-derived input dimensions such as the emotional state of users. A practical embodiment of a technically mature health and productivity application is presented. Study results show the effects on PC office worker burnout, job satisfaction, and productivity through enhanced awareness of stress and targeted micro trainings.

Chris Stockinger has over 20 years of experience in the development of biosensors and equipment for the medical and consumer markets. He is the inventor of Logisens' biosensors, core IP, and patents. His studies in electrotechnical engineering at the Technical University of Vienna included five years of academic research on skin sensors.

Session 2-C: 2:00 – 2:50 p.m.

Immersive and Augmented Environments

Room 230

Bruce Blaho, HP Fellow and Chief Technologist for Hewlett-Packard's Desktop Workstation Division

Title: *Personal Telepresence*

New technologies are emerging today that will lead to a revolution in the way we communicate with others for work and play. "Personal Telepresence" refers to the ability to interact remotely with others in a natural way, using real-time video conferencing, application sharing, and other techniques to make it feel like you are in each others' presence. This session will explore the benefits of telepresence, what's available today, what's around the corner, and what's likely to emerge over the next decade.

Bruce Blaho is a graduate of The Ohio State University, earning BSEE (Summa Cum Laude) and MSEE degrees. He has been living in Fort Collins with his family since 1985.

The Future of Games - Track 3

All sessions moderated by **Cathy Cranston**, Morgan Library, CSU.

Session 3-A: 10:00 – 10:50 a.m.

Games and Social Networks

East Ballroom

Jeffrey Snodgrass, Professor of Anthropology, Colorado State University

Title: Virtually Shamans: Fantasy Immersion, Social Ties, and the Therapeutics of World of Warcraft

Jeff Snodgrass currently researches the "biopsychocultural" dimensions of stress and mind-body health and healing. This expresses itself in two projects. First, he is investigating the addictive and therapeutic dimensions of World of Warcraft - a "massively multiuser online role-playing game" (MMORPG) and internet community. He is most interested to understand how this online environment facilitates altered "dissociative" experiences, which, by promoting or relieving stress, are linked to both positive and negative health outcomes. This research has begun with primarily U.S. gamers with plans to extend the project to France and India. Second, he is working to understand how loss of access to forest spaces and resources - for example, through deforestation and displacement from a newly established wildlife preserve in central India - impacts indigenous peoples' health and systems of healing. He is especially interested to clarify how the ethnopsychiatric and potentially stress-relieving dimensions of indigenous therapies – for example, the healing power of spiritual states of consciousness – continue to function in these compromised environments. Overall, he hopes work on both of these projects will contribute anthropological perspectives on the health implications and environmental dynamics of processes related to stress and relaxation.

Eric Hackathorn, Program Manager, National Oceanic and Atmospheric Administration (NOAA) Boulder, Colorado

Title: Finding Meaning from our Realities through the Power of Play

Eric Hackathorn started with his first computer before he learned to ride a bicycle. His father was kind enough to allocate him 100 KB of the family's 10 MB hard drive: one of the first commercially available of its kind. Since that time, he has spent a majority of his time dabbling in all things computer related. After graduating from high school, he started working for the National Oceanic and Atmospheric Administration (NOAA) in Boulder, Colorado. At the same time, he attended and then graduated from the University of Colorado majoring in electrical and computer engineering. He continues his work at NOAA today as a virtual worlds program manager.

Eric has taken a back seat to his much handsomer counterpart Hackshaven Harford. Hackshaven is Eric's avatar (a virtual representation of himself) and exists only in the virtual worlds. Together they have been busy designing 3-D spaces to highlight the missions of various government agencies. In addition, they recently formed a company "Maya Realities" to explore 3-D virtual world metrics. In essence, helping to gauge the return on investment for companies creating beach heads in virtual worlds such as Second Life.

Session 3-B: 11:00 – 11:50 a.m.

The Future of Game Design

East Ballroom

Nathan Martz, Lead Programmer at Double Fine Productions in San Francisco

Title: Opportunity and Adversity: The Next Decade of Game Development

Nathan Martz is a Project Lead at Double Fine Productions, an independent developer in San Francisco where he is hard at work crafting an exciting new, top secret game which he would very much like to tell you all about but really absolutely cannot, even if you ask nicely or offer to buy him a tasty beverage. Before starting up this awesome-but-secret-game, Nathan was the Lead Programmer on Brutal Legend (http://www.brutallegend.com), a heavy-metal action dramedy released last October on Playstation 3 and Xbox 360. Nathan came to Double Fine after a stint at as a Technical Art Director and later as a Gameplay Programmer LucasArts, where he worked with "top men" on Star Wars: Bounty Hunter and Star Wars: Republic Commando. Nathan is a passionate believer that game development can and should reach wider audiences and that to do that we need to create a wider range of experiences and express a wider range of emotions. In the middle of an industry in fundamental transition, Nathan is very excited and more than a little bit scared.

Scott Leutenegger, Professor in the School of Engineering and Computer Science, University of Denver

Title: *Humane Games*

Scott Leutenegger is a National Science Foundation (NSF) Career Award winner and creator of the University of Denver Game Development degree program. He has 24 years experience teaching computer science and game development. In 2008 he received the University of Denver Distinguished Teaching Award in 2007, awarded to 1 of the 600 faculty each year. He earned his Ph.D. in Computer Science from the University of Wisconsin in 1990, held a post-doctoral research position at IBM Watson from 1990-92, a staff scientist position at NASA ICASE from 1992-94, and has been at the University of Denver since, including serving as chair of the computer science department. Professor Leutenegger's technical contributions include over 40 publications in top database, performance modeling, and education venues as well as serving on editorial boards and program committees for many computer science venues.

Session 3-C: 2:00 – 2:50 p.m.

Teaching Programming with Games Panel

Room 220-222

Becky Knips, Poudre School District Middle School Computer Education Teacher

Title: *Using game design as a method for teaching programming to middle school students*

Becky Knips is a computer teacher as Lesher IB World Middle School in Fort Collins. She teaches Web design, game programming and digital technology. She is a pioneer in integrating game design as a creative method for teaching computer programming to 6th graders and was a lead teacher in implementing the innovative Web 2.0 curriculum for middle school students in the fall of 2009. She received her undergraduate degree in Computer Education from Dakota State University and her Master's degree in Education Technology from the University of Northern Colorado.

Ben Johnson, Poudre School District Instructional Technology Coordinator

Title: ***Got Game? Teaching problem solving and critical thinking with computer game programming***

Ben Johnson provides technology-related staff development and technology integration guidance for teachers in 50 schools in the district. In addition, Ben teaches instructional technology classes at Colorado State University and Metro State College in Denver. Currently, Ben is completing research for his doctoral degree in educational technology at the University of Northern Colorado. His research interests include: multimedia theory, computer-based social agents, online learning, and achievement motivation & achievement theory. He earned his bachelor and master's degree in technology education at Colorado State University and has been teaching for 15 years.

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