

in cooperation with
The Association for Computing Machinery
Special Interest Group on Computer Science Education
Presents
CCSCNE-2006
THE ELEVENTH ANNUAL
CONSORTIUM FOR COMPUTING
SCIENCES IN COLLEGES
NORTHEASTERN CONFERENCE
College of the Holy Cross
April 21 - 22, 2006
Worcester, MA



The CCSCNE brings together faculty, staff, and students from academic institutions throughout the Northeast for exchange of ideas and information concerning undergraduate computing curricula.

Schedule starts on page 5.

Poster descriptions start on page 9.

Descriptions of plenary sessions and workshops start on page 13.

Map of College of the Holy Cross at http://www.holycross.edu/about/camp_mapbw.html

2006 Conference Committee

Conference Co-Chairs

Karl Wurst, Worcester State College
Laurie King, College of the Holy Cross

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Local Arrangements

Constance Royden, College of the Holy Cross
Laurie King, College of the Holy Cross

Birds of A Feather Coordinator

Viera Proulx, Northeastern University

Greetings from the Co-Chairs

Welcome to the Eleventh Annual Consortium for Computing Sciences in Colleges Northeast Region Conference, Worcester, and to the College of the Holy Cross.

This year's program is the result of the hard work of a diligent conference committee and a dedicated board. We are honored to have two invited speakers, Lynn Stein of Olin College and Nancy Leveson of M.I.T. In addition, we have a broad range of paper presentations, panels, tutorials, workshops and a large and interesting collection of student research posters. The traditional programming contest should be fun for everyone. We are confident this program will appeal to both teachers and students of computing sciences.

We are fortunate to have worked with wonderful people. Without the committee, the board, the reviewers, session chairs and countless other volunteers this conference could not be the well-established success it is. The conference continues to be selective as we accepted 23 out of 50 papers for a rate of 46%. This will ensure the high-quality program that participants have come to expect.

We are pleased to be hosting this year's conference in Worcester, a city with a large and diverse collection of colleges. And we are especially pleased to be holding the conference in the Hogan Conference Center of the College of the Holy Cross. Holy Cross is proud of its facilities and its liberal arts education in the Jesuit tradition. An exclusively undergraduate institution with approximately 2,700 students, Holy Cross is the oldest Catholic college in New England.

We hope you find the conference both rewarding and enjoyable. We also look forward to seeing you next year at the Rochester Institute of Technology in Rochester, NY.

CCSCNE-2006 Conference Co-Chairs
Laurie Smith King, College of the Holy Cross
Karl Wurst, Worcester State College

Referees - 2006 CCSC Northeastern Conference

The conference committee acknowledges with gratitude the work of the reviewers listed here. All papers were blind-reviewed by several referees independently and the Papers Chairs used this information to select the papers which appear at this conference. Without these reviewers, we would not be able to maintain the selectivity and high paper quality that we consider so important to this conference.

Don Allison,
SUNY College at Oneonta, NY
Pavel Azalov,
Penn State Hazleton, PA
Valerie Barr,
Union College, NY
B. Bhagyavati,
Columbus State University, GA
Moe Bidgoli,
SVSU/CSIS DEPT, MI
Stephen Bloch,
Adelphi University, NY
Gerald Burgess,
Western New Mexico University, NM
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Gene Chase,
Messiah College, PA
Porter Coggins,
University of Wisconsin-Stevens
Point, WI
Robert Cohen,
UMass Boston, MA
Lawrence D'Antonio,
Ramapo College, NJ
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SUNY Potsdam, NY
Michael Gousie,
Wheaton College, MA
Maria Guevara,
Carabobo University, Venezuela
Mark Hoffman,
Quinnipiac University, CT
Donald Hsu,
Dominican College, NY

Scott Hunter,
Siena College, NY
Lubomir Ivanov,
Iona College, NY
Mark Jaeger,
Baker College of Owosso, MI
Bo Kim,
Daniel Webster College, NH
Yana Kortsarts,
Widener University, PA
Janet Kourik,
Webster University, MO
Barbara Lerner,
Williams College, MA
David Levine,
St. Bonaventure University, NY
Roy Levow,
Florida Atlantic University, FL
Stephen Paul Linder,
Dartmouth College, NH
Joan Lucas,
SUNY Brockport, NY
Aparna Mahadev,
Worcester State College, MA
Robert McCloskey,
University of Scranton, PA
Jose Metrolho,
IPCB, Portugal
Sandeep Mitra,
SUNY Brockport, NY
Tom Murtagh,
Williams College, MA
Robert W. Neufeld,
McPherson College, KS
Ali Asadi Nikooyan,
Amirkabir University of Technology,
Iran

Toshiro Ohsumi,
Colgate University, NY
Mary Jo Orzech,
SUNY Brockport, NY
Hemant Pendharkar,
Worcester State College, MA
Stefan Robila,
Montclair State University, NJ
Ingrid Russell,
University of Hartford, CT
Cara Stein,
Edinboro College, NJ
Jeffrey Stone,
Pennsylvania State University, PA
Larry Stouder,
St. John's University, NY
Joo Tan,
Kutztown University, PA

Des Traynor,
National University of Ireland,
Maynooth
John Vaughn,
Hobart and William Smith Colleges,
NY
David Voorhees,
Le Moyne College, NY
Linda Wilkens,
Providence College, RI
Karl Wurst,
Worcester State College, MA
Amir Abbas Zadpoor,
Amirkabir University of Technology,
Iran
Xuesong Zhang,
Southeast Missouri State University,
MO

List of Vendors

The following vendors will have display tables in Hogan 320

Addison Wesley
Labyrinth
Microsoft (Will make a presentation at 4:00 p.m. on Friday)
O'Reilly

Programming Contest Teams

Connecticut College, CT
Daniel Webster College, NH
Fitchburg State, MA
Framingham State College, MA
Manhattan College, NY
Muhlenberg College, PA
Pace Univ., NY
Penn State University at New Kensington, PA
Pennsylvania College of Technology, PA
Providence College, RI
Ramapo State College, NJ
Rhode Island College, RI

Smith College, MA
St. Anselm College, NH
St. John Fisher College, NY
St. Michael's College, VT
Stonehill College, MA
SUNY Plattsburgh, NY
SUNY Brockport, NY
SUNY Oneonta, NY
SUNY Potsdam, NY
Wellesley College, MA
Widener Univ, PA
Worcester State College, MA

Friday, April 21, 2006

Registration 10:00 a.m. – 5:00 p.m.

Hogan 3rd Floor Lobby/Entrance

Workshop participants register in the same place at 8:00-9:00

Programming contest participants/coaches register in Swords Atrium at 7:30-8:20.

Programming Contest..... 7:30 a.m. – 12:45 p.m.

Breakfast and registration of teams and team members 7:30 a.m.-8:20 a.m.

Swords Atrium

Computers Available for Teams to Practice 7:30 a.m.-8:20 a.m.

Swords 219

Initial Meeting 8:20 a.m.-8:50 a.m.

O’Neill 112

Contest 9:00 a.m.-Noon

Swords 219

Luncheon for Teams Noon-12:45 p.m.

Swords Atrium

Pre-conference Workshops 9:00 a.m. – noon

A hands-on workshop on computer Security tools

Narayan Murthy and Daniel Farkas, Pace University, NY

(see description after program)

Hogan 408-409

Using Lego robots for traditional projects in the artificial intelligence course

Amruth Kumar, Ramapo College of New Jersey

(see description after program)

Hogan 410

Vendor Displays 10:00 a.m.-6:00 p.m.

Hogan 320

Welcome 1:00 p.m.-1:15 p.m.

Rev. Michael McFarland, S.J., President of the College of the Holy Cross

Laurie King, College of the Holy Cross, CCSCNE-2006 Co-Chair

Hogan Ballroom

Plenary Session I 1:15 p.m.-2:15 p.m.

Hogan Ballroom

*A small footprint curriculum for computing (and why on earth
anyone would want such a thing)*

Lynn Stein, Olin College, MA

Hogan Ballroom

(see description after program)

Break 2:15 p.m.-2:45 p.m.

Hogan Reception Area outside Ballroom

Concurrent Session 1..... 2:45 p.m. -4:00 p.m.

Session 1A. Papers: Broadening access to computing

Session Chair: David Pitts, Merrimack College

Hogan 401

From computer literacy to cyber-literacy

Evelyn Stiller, Cathie LeBlanc, Plymouth State University, NH

Web design: interface to the liberal arts

Bridget Baird, Connecticut College

Bridges connecting computer science and calculus

Jill Gerhardt, Saralyn Grenga Mathis, Rebecca Hall, Richard Stockton College of New Jersey

Session 1B. Papers: Core and upper-level courses

Session Chair: Suban Krishnamoorthy, Framingham State College

Hogan 402-3

A modern course on parallel and distributed processing

Lubomir Ivanov, Iona College, NY

Integrating hardware experiences into a computer architecture core course

Fred Martin, University of Massachusetts-Lowell

NP-completeness for all computer science undergraduates ...

Andrea Lobo, Ganesh Baliga, Rowan University, NH

Session 1C. Panel: Computer Science education and Asperger's Syndrome

Hogan Suite A

Michael Battig, Greta Pangborn, Mary Beth Doyle, St. Michael's College; Mary Anne Egan, Siena College, NY

Session 1D. Tutorial: User interface prototyping: tips and techniques

Hogan Suite B-C

Clif Kussmaul, Muhlenberg College, PA; Roger Jack, Elegance Technologies, Inc.

Break 4:00 p.m.-4:45 p.m.

Hogan Reception Area outside Ballroom

Concurrent Session 2..... 4:45 p.m.-6:00 p.m.

Session 2A. Papers: Projects

Session Chair: Larry Pritchett, Lycoming College

Hogan 401

Student perspectives on a real world project

Sofya Poger, Frances Bailie, Iona College, NY

Building community service projects effectively

Michael Werner, Lisa MacLean, Wentworth Institute of Technology, MA

Challenging projects and virtual labs in web-enhanced networking technology classes

Vladimir Riabov, Rivier College, NH

Session 2B. Papers: Bioinformatics

Session Chair: Larry Pritchett, Lycoming College
Hogan 402-3

A bioinformatics experience course

Richard Connelly, Charles Toth, Providence College, RI

A Ruby in the rough: using VHLLs in bioinformatics

Darren Lim, Siena College, NY

Session 2C. Panel: Technology skills of incoming freshman: are first-year students prepared?

Hogan Suite A

Jeffrey Stone, Elinor Madigan, Pennsylvania State University; Mark Hoffman,

David Vance, Quinnipiac University, CT

Student Posters/Social Hour 6:00 p.m.-7:00 p.m.

Hogan 328, 304, 305

The list of posters, poster presenters, and their advisors appears after the program.

Banquet..... 7:00 p.m.-9:00 p.m.

Hogan Ballroom

The Programming Contest and Student Poster Session awards
will be announced at the banquet

Saturday, April 22, 2006

Continental Breakfast7:30 a.m.-8:30 a.m.

Hogan Reception Area outside Ballroom

Registration8:00 a.m.-10:00 a.m.

Hogan 3rd Floor Lobby/Entrance

Vendor Displays8:00 a.m.-10:30 a.m.

Hogan 320

Concurrent Session 3.....8:30 a.m.-9:45 a.m.

Session 3A. Papers: Information technology

Session Chair: Harold Smith, Penn State, New Kensington
Hogan 401

Using RFID in the classroom to teach information systems principles

Robert Yoder, Siena College, NY

An invitation to IT: redesigning the first year

Lucia Dettori, Gian Mario Besana, Theresa Steinbach, DePaul University, IL

Network certification for the computer science or electrical engineering undergraduate

Vance Poteat, Merrimack College, MA

Session 3B. Papers: Games and visualization

Session Chair: Harold Smith, Penn State, New Kensington

Hogan 402-3

Pedagogical possibilities for Pig

Todd Neller, Clifton Presser, Gettysburg College; Ingrid Russell, University of Hartford; Zdravko Markov, Central Connecticut State University

The Curse of Monkey Island: holding the attention of students weaned on games

Brian Ladd, St. Lawrence University, NY

Geospatial visualization of student population using Google maps

Hrvoje Podnar, Adam Gschwender, Robert Workman, Jian Chan, Southern Connecticut State University

Session 3C. Panel: Is Computer Science still relevant?

Hogan Suite A

Mark Hoffman, Quinnipiac University, CT

Aaron Kershenbaum, IBM T. J. Watson Research Center, NY

Haldun Hadimioglu, Polytechnic University, NY

Lubomir Ivanov, Iona College, NY

Robert Schiaffino, Iona College, NY

Session 3D. Tutorial: Using Wikis to foster team communication, cohesion, and collaboration

Hogan Suite B-C

Clifton Kussmaul and Simon Priest, Muhlenberg College, PA

Susannah Howe, Smith College, MA

(see description after the program)

Plenary Session II.....10:00 a.m.-11:00 a.m.

Hogan Ballroom

A New Approach to Safety in Software-Intensive Systems

Nancy Leveson, Massachusetts Institute of Technology

Break11:00 a.m.-11:30 a.m.

Hogan Reception Area outside Ballroom

Concurrent Session 4..... 11:30 a.m.-12:45 p.m.

Session 4A. Papers: Pedagogy

Session Chair: Robert Yoder, Siena College

Hogan 401

Writing for computer science: a taxonomy of writing tasks and general advice

Robert Dugan, Virginia Polanski, Stonehill College, MA

An evaluation of a broad deployment of DyKnow software

David Berque, DePauw University, IN

An evaluation of learning in an online project-based web application design and development course

Heidi Ellis, Trinity College, CT

Session 4B. Papers: Software engineering

Session Chair: J. Brian Adams, Franklin and Marshall College

Hogan 402-3

Teaching software development by example

Evelyn Stiller, Cathie LeBlanc, Plymouth State University, NH

An instructional scaffolding approach to teaching software design

Steven Paul Linder, David Abbott, Michael Fromberger, Dartmouth College, NH

Resources for reconsidering software engineering offerings by computer science departments

Gregory Hislop, Thomas Hilburn, Michael Lutz, Mark Sebern,

Drexel University, PA

Session 4D. Tutorial: Java version 5 for introductory courses

Hogan Suite B-C

James Heliotis, Rochester Institute of Technology, NY

(see description after program)

Lunch 12:45 p.m.-2:00 p.m.

Hogan Ballroom

Winner of the Best Paper award will be announced at the luncheon.

Membership meeting..... 2:00 p.m.-2:30 p.m.

Hogan 408-409

Board meeting 2:30 p.m.-4:00 p.m.

Hogan 408-409

Student Posters
Friday, 6:00 p.m. – 7:00 p.m.
Hogan 328, 304, 305

Dual coding theory for interactive learning systems

Rachelle Dostie, Johnson & Wales University, RI

Carly Bergey, University of Rhode Island

Advisors: Jan Jungclaus, Miguel Encarnacao, Peter Stephenson

Complex image distortion using mathematical algorithms

Aimee Wolons, State University of New York College at Oneonta

Advisor: Don Allison

Data mining the variable stars

Stephen Muliokela, Jae Kim,

Advisors: Sehwan Yoo, George Wooley

Examining the role of iteration in the complete lifecycle of a traceability-oriented software development process

Stefan Christov, Borislava Simidchieva, SUNY College at Brockport

Advisor: Sandeep Mitra

PARALLEL algorithms on Connex-like machines

- Alejandro Giacometti, Saint Anselm College
 Advisor: Mihaela Malita
- Viscmaq: visualization of community multi-scale air quality (cmaq) modeling system*
 Solomon Mainye, Michael Khalil, New Jersey City University
 Advisor: Thomas Liu
- Exploring prediction techniques for ECG signal compression*
 Bahar Kandemir, Steven Kindlon, SUNY Fredonia
 Advisor: Ziya Arnavut
- Design and implementation of a terrain simulator and development tools*
 Jason Black, Lycoming College, PA
 Advisor: Eileen Peluso
- Towards a cooperative machine learning simulator*
 Jason Black, Lycoming College, PA
 Advisor: Dean Hougen
- Calculating heading from a video camera: a computational model of motion perception*
 Robert Truxler, College of Holy Cross, MA
 Advisor: Constance Royden
- Web document classification using machine learning clustering algorithms*
 Marlon Gregory, Roberto Scata, University of Hartford, CT
 Advisor: Ingrid Russell
- Component-based distributed systems framework*
 Shawn Vause, The Pennsylvania State University – New Kensington
 Advisor: H. Smith
- Hardening Microsoft Sql Server 2000: patching vulnerabilities*
 Miesha James, Columbus State University, GA
 Advisor: Bhagyavati
- Mobile Mmoodle*
 Mike Yingling, Muhlenberg College, PA
 Advisor: Clifton Kussmaul
- Telepresence and its application in real world situations*
 Michael Cannizzo, Wagner College, NY
 Advisor: Adrian Ionescu
- Studentweb: an exercise in project management and systems design and analysis*
 Steven Altieri, Chris Donovan, Jonathan Entwistle, Kyle Hill, Brian Matarazzo,
 Timothy Roberti, Joanna Shannon, Brenton Sheehan, Providence College, RI
 Advisor: Richard Connelly
- The detection of moving objects by moving observers*
 Erin Conners, College of Holy Cross, MA
 Advisor: Constance Royden
- Responsive electronic music accompaniment for dance as generated by video capture analysis*
 Travis Mcdemus, Emily Skrzat, Muhlenberg College, PA
 Advisor: Clifton Kussmaul
- Improving network security with a graphical user interface*

- David Counts, University of Rhode Island,
 Advisor: Petar Horvatic, Joan Peckham
Organizing musical pieces by tonal similarity
 Sijia Hu, Connecticut College
 Advisor: Ozgur Izmirli
- Wireless security on mobile embedded devices via one-time pads and proxies*
 Michael Gruen, Hamilton College, NY
 Advisor: Mark Bailey
- Bluetooth automatic data acquisition and synchronization software*
 Erik Goulding, Michael Gruen, Aram Kudurshian, Hamilton College, NY
 Advisor: Mark Bailey
- Virtual environment*
 Tim Mullin, Mike Yingling, Matt Berner, Muhlenberg College, PA
 Advisor: Clifton Kusssmaul
- Creation of a wiki-based code snippet repository*
 Nicholas Mwai, Colby College, ME
 Advisor: Marc Smith
- Exploring insect communication protocols with a microcontroller-based instrument*
 Jonathan Chase-Deban, Matt Glover, David Lustig, Mike Taft, Brian Vysocky,
 Kong Xiong, Fitchburg State College, MA
 Advisor: Kevin Austin
- Laser interaction with projected graphics*
 Elizabeth Schafer, Providence College, RI
 Advisor: Peter Stephenson
- Rehabilitation of muscles using virtual reality*
 Evan Rubin, Kellen Mickley, Muhlenberg College, PA
 Advisor: Clifton Kusssmaul
- On the effect of proactive and alternate path routing in mobile ad hoc networks*
 Momchil Kyurkchiev, SUNY College at Brockport
 Advisor: Vishal Anand
- Maya to torque: structures and interiors*
 Michael Reale, SUNY Oneonta
 Advisor: Donald Allison
- An adaptive web crawler*
 Benjamin Dowden, University of Hartford, CT
 Advisor: Ingrid Russell
- Graphical and statistical modeling of a doped yttrium aluminum garnet ($Y_3Al_2(AlO_4)_3$) crystal*
 Jeremy Tudisco, Wheaton College, MA
 Advisor: John Collins
- An online game using both client-peer and peer-peer communication*
 Joseph Lavoine, Wheaton College, MA
 Advisor: Lisa Michaud
- Pedestrian simulation in emergency and non-emergency situations*

- Cody Lee, University of Rhode Island,
Advisors: Joan Peckham, Jean-Yves Herve
- Visualizing the deformation of articular cartilage during dynamic motion of the knee*
Christopher T.S. Allen, University of Rhode Island
Advisor: Jean-Yves Herve
- Graphical representation of antimatter absorption*
Travis McDemus, Muhlenberg College, PA
Advisor: Brett Fadem
- Pitch-based tune identification*
William Zeller, Trinity College, CT
Advisor: Takunari Miyazaki
- The boolean satisfiability problem*
Jon Feuss, Rowan University, NJ
Advisor: Andrea Lobo
- Interactive analysis of the structure and organization of a large collection of neuron models*
Elizabeth Gifford, Brandeis University, MA
Advisor: Timothy Hickey
- Time-variable tempo tracking and beat-annotation for Mir*
Ian Leue, Connecticut College
Advisor: Ozgur Izmirli
- Motion tracking and prediction using fuzzy logic*
Patrick Rodjito, Colby College, ME
Advisors: Joseph Atkins, Randolph Jones
- Modeling and animation of diatoms (phyto-plankton) – interaction of diatoms within turbulent eddies*
Johnny Shen, University of Rhode Island,
Advisor: Jean-Yves Herve
- Patterns in two-dimensional impartial combinatorial games*
Jason Catterson, St. Mary's College of Maryland
Advisor: Matthew Burke
- Dynamic balancing of virtual operating systems*
Travis Vachon, Williams College, MA
Advisor: Jim Teresco
- Data mining & machine learning techniques in music key detection*
Brian Odour, Connecticut College
Advisor: Ozgur Izmirli

Workshop/Tutorial Descriptions and Biographies

A hands-on workshop on computer security tools

Narayan Murthy and Daniel Farkas, Pace University, NY

Abstract: This workshop will briefly overview basic security issues (e.g. security policies and management, firewalls, host security, cryptography, application security, incident and disaster response, social engineering). Participants will learn a number of tools which are used in our introductory courses:

- Steganography - Invisible Secrets,
- Password recovery- John the Ripper,
- Network sniffer - Ethereal,
- Encryption using- GnuPG,
- Phishing using port 25
- Integrity checking - Tripwire,
- Network Security-Nessus.

The workshop will cover as many of the tools possible within the constraints of the workshop time.

Biographies:

Daniel Farkas, Associate Professor, Information Systems, Pace University
As chair of the Information Systems department, Dan Farkas has been innovative in developing curriculum in Computer Security and Information Assurance. With Narayan Murthy, he developed and taught the first undergraduate course in Security at Pace University as well as the University's first concentration in security through the MS/Internet Technology. Dan has been delivering professional seminars in Unix, Linux System Administration, Network and Network Administration to national audiences for over 20 years.

Narayan Murthy, Professor, Computer Science, Pace University
Narayan Murthy has been teaching computer science for more than 20 years. Recently, he has developed interest in Internet technology and computer security. He has been teaching these topics, including the very successful graduate and undergraduate tools based security course, for the last several years.

Using Lego robots for traditional projects in the artificial intelligence course **Amruth Kumar, Ramapo College of New Jersey**

Abstract: In this workshop, we will discuss how to use LEGO robots to assign projects on traditional topics in AI. We will discuss robot projects on topics such as search, expert systems and neural networks: the design, logistics, implementation options, and

guidelines for hardware, software and props for the projects. Participants will work through the Java solutions of two projects - complete, compile, download and execute them on LEGO robots to get a hands-on feel. This workshop will be of interest to instructors who would like to use robots for traditional projects in their AI course. The topics covered and the materials provided at the workshop should enable participants to immediately, easily and inexpensively use LEGO robots in their AI course. Since the projects will be in Java, knowledge of Java is helpful. The instructor will bring the LEGO robots needed for the workshop.

Biography: Amruth Kumar has been teaching the Artificial Intelligence course since 1990, and has taught it at both undergraduate and graduate levels. He has been using LEGO robots in his Artificial Intelligence course since fall 2000. He has presented tutorials on using LEGO in the AI course at ITiCSE 2005, Lisboa, Portugal, and at an NSF-sponsored workshop at the University of Mississippi in November 2004. Partial support for this work was provided by the National Science Foundation's Course, Curriculum and Laboratory Improvement Program under grant DUE-0311549.

Tutorial: User interface prototyping: tips and techniques
Clif Kussmaul, Muhlenberg College, PA; Roger Jack, Elegance Technologies, Inc.

Abstract: This workshop will introduce tools and techniques to quickly design and refine user interfaces (UIs) for application software, web sites, and other products or services with complex interfaces. Effective UI prototyping can significantly improve user satisfaction; clarify user requirements and product scope; and reduce time, resources, and rework needed for product development. The workshop will cover the advantages and disadvantages of UI prototyping in general, and of specific approaches, including paper prototyping, word processors or presentation software, and specialized software tools. We will use several activities to introduce participants to some tools and techniques and to some of the different roles in UI prototyping. First, we will discuss the role of UI prototyping in different stages of product development, and its advantages and disadvantages. Next, we will introduce paper prototyping and a small example, and teams of attendees will apply it to a small design problem. We will then describe how general-purpose presentation software can be used, and demonstrate some specialized software. Teams will then use these tools in a second, larger design problem. We will conclude with additional discussion and experimentation. Participants will receive a packet of materials with additional activities and examples. This workshop should be useful for practitioners and educators interested in user interface prototyping.

Biographies:

Clif Kussmaul is Assistant Professor of Computer Science at Muhlenberg College, and Chief Technology Officer for Elegance Technologies, Inc. He has a PhD from the University of California, Davis, an MS and MA from Dartmouth College, and a BS and BA from Swarthmore College. His interests include agile development, virtual teams, entrepreneurship education, and cognitive neuroscience, and electronic music.

Roger Jack is President of Elegance Technologies, Inc. Roger has experience in project management, and creating reliable and robust interfaces and architectures. He is the former Vice President of U.S. Software Operations for NeST Technologies, where he managed many offshore projects. He has an MBA from Duke University's Fuqua School of Business, and an MS in Computer Science from Villanova University.

Using Wikis to foster team communication, cohesion, & collaboration

Clif Kussmaul, Muhlenberg College, PA, and Elegance Technologies, Inc.

Susannah Howe, Smith College, MA

Simon Priest, Muhlenberg College

Abstract: DeMarco & Lister observed that “the major problems of our work are not so much technological as sociological in nature” (original emphasis). Many of these issues fall into three categories: communication (sharing information), cohesion (developing community & trust), and collaboration (working to achieve a goal). As educators, we want students to experience these issues and how to address them in teams; we want students to reflect on these issues to see how they develop over time; and we want to evaluate student progress towards these goals. Wikis are valuable tools for addressing these issues, particularly for distributed or virtual teams. A wiki is a web-based system where any user can easily create and edit pages, and create links between pages. Users can also view any previous version of a page, to see who changed it and how it evolved. This workshop will help attendees learn to use wikis, and determine when and how to use them. We will begin by introducing the workshop and surveying attendees regarding their backgrounds and interests. Next, we will briefly describe wikis, and show some examples. We will then divide attendees into small teams, introduce a project context, and proceed through 3-4 exercises that use wikis to support different project activities. Our goal is to help attendees learn to edit, link, create, and organize information in a wiki. We will conclude with a discussion of applications, issues, and concerns.

Biographies:

Clifton Kussmaul biography is in previous tutorial description.

Susannah Howe is the Design Clinic Director in the Picker Engineering Program at Smith College. She coordinates and teaches the capstone engineering design course and serves as co-faculty advisor for entrepreneurial activity at Smith. Her interests include innovations in engineering design education, entrepreneurship education across disciplines at the undergraduate level, and durability and structural performance of cementitious and natural building materials.

Simon Priest, Ph.D. is Professor of Education and Dean at the Wescoe School of Muhlenberg College. As Dean, he manages adult learning, continuing education, and technology outreach functions for Muhlenberg College. Until recently, he was the President & CEO of virtualteamworks.com: a global E-learning company specializing in building virtual teams, training electronic facilitators, and using online communication technology. As a professor, he specializes in experiential learning, andragogy, and executive development

Java version 5 for introductory courses

James Heliotis, Rochester Institute of Technology, NY

Abstract: This tutorial introduces features contained in the release of Java 2 Standard Edition (J2SE) version 5.0. It will include an overview of many of the features of interest to educators and explanations of why it is in our best interest to be proactively using this new release of the language in first-year courses.

Biography: James Heliotis received his B.S. and M.Eng. degrees in Electrical Engineering from Cornell University in 1975 and 1976. After four years as an engineer and real-time systems programmer at Xerox Corporation, he returned to academia and received his Ph.D. in Computer Science from the University of Rochester in 1984. Since 1983 he has taught in the Department of Computer Science at the Rochester Institute of Technology. From 2000 to 2002 he held a joint appointment in the department of Software Engineering. James currently holds the rank of Full Professor. Dr. Heliotis has also done software development training and consulting for several companies in the Rochester area, including Xerox, Kodak, Tropel, Frontier, Heidelberg, and ITT. His interests include software engineering, programming languages and tools, real-time systems, and distributed computing.

Plenary Sessions Abstracts and Biographies

A small footprint curriculum for computing (and why on earth anyone would want such a thing)

Lynn Stein, Olin College, MA

Abstract: Computing -- not just programming, but the fundamental ideas behind computational thinking and computational systems -- is increasingly important to a broad set of disciplines ranging from computational biology to organizational behavior and from statistics to philosophy. At the same time, computer science curricula reflect the growth of the discipline and its maturing efforts to capture a broad range computational phenomena, leading to larger and more inwardly focused computational programs. This talk describes an alternative, the small footprint curriculum developed at Olin College, and the lessons learned in creating this curriculum about what is core to computing. While Olin's program was constrained by the need to incorporate hands-on problem solving, teamwork, and design within an engineering curriculum, the talk will also survey the many other educational trends that make such a small-footprint curriculum desirable.

Biography: Lynn Andrea Stein is Professor of Computer and Cognitive Science and the Director of the Computers and Cognition Laboratory at the newly established Franklin W. Olin College of Engineering in Needham, Massachusetts. Prior to becoming one of Olin's first faculty members, Stein spent a decade on the faculty of the Massachusetts Institute of Technology, where she was a member of the Artificial Intelligence Laboratory and the Laboratory for Computer Science. Stein's research focuses on the role that interaction plays in both computational and cognitive processes; her projects include the construction of an artificial humanoid and an intelligent room, philosophical and pragmatic work from knowledge representation to the semantics of cognition, and most recently co-authorship of foundational documents for the semantic web.

A New Approach to Safety in Software-Intensive Systems

Nancy Leveson, Massachusetts Institute of Technology

Abstract: Traditional approaches to safety and technical risk management are based on reliability theory and assume accidents are caused by component failure. These approaches, however, do not work well for software-intensive systems (software does not "fail" in the same way as hardware), system accidents (which arise from dysfunctional interactions among components rather than component failures), and risks involving organizational and human decision-making. In this talk I will present a new model of accident causation based on systems theory and new approaches to technical risk analysis and management based on it. An example will be shown of a risk analysis of the NASA Manned Space Program we performed for the NASA Chief Engineer after the Columbia accident.

Biography: Nancy Leveson is Professor of Aeronautics and Astronautics Dept. and also Professor of Engineering Systems at MIT. She is a member of the National Academy of Engineering (NAE). Prof. Leveson conducts research on the topics of system safety,

software safety, software and system engineering and human-computer interaction. In 1999, she received the ACM Allen Newell Award for outstanding computer science research and in 1995 the AIAA Information Systems Award for "developing the field of software safety and for promoting responsible software and system engineering practices where life and property are at stake." This year she received the ACM Sigsoft Outstanding Research Award. She has published over 200 research papers and is author of a book, "Safeware: System Safety and Computers" published by Addison-Wesley.

Accommodations and Directions

There are two conference hotels (The Crowne Plaza and The Hampton Inn). Callers must mention CCSC-NE to get the rates shown below. Both hotels are about 3 miles from the College of the Holy Cross.

The Crowne Plaza Hotel (3.1 miles from Holy Cross)

www.cpworcester.com

10 Lincoln Square

Worcester, MA 01608

(508) 791 - 1600, 1-888-303-1746

The Crowne Plaza is a full service hotel. The conference has reserved a block of 30 rooms for Friday night (20 for Thursday night and 5 for Saturday night). The negotiated rate is \$99 for either a single or a double. The conference rate holds until March 31, 2006.

Directions to the Crowne Plaza:

From the Massachusetts Turnpike:

Take exit 10 off the Mass Pike (I-90) to I-290 East. Take exit 17. Turn left on Rt. 9 (aka Highland Street/Belmont Street). Get into the left lane and turn left onto Lincoln Street. The Crowne Plaza is on the right.

From I-495:

Take exit 25B off I-495 to I-290 West. Take exit 18 (Rt. 9 West). Turn right off the exit ramp and stay in the center/left lane. Go approximately one block. Cross Highland Street (where Rt. 9 West turns right). The Crowne Plaza is on the right.

Directions to Holy Cross from the Crowne Plaza:

Go south on Lincoln Sq/Worcester Center BLVD toward Thomas St. Continue on Worcester Center Blvd. Turn Left on Central St. Merge onto I-290 W toward Auburn. From I-290 West, take Exit 11 (College Square, Southbridge Street). Bear left coming off the ramp onto Southbridge Street. Take the first right (before the traffic light) onto College Street. Go up the hill and enter the last gate on the left, Gate 7. The Hogan Campus Center is the second building on the left with the large silver cross on it. Visitor parking is to the right of the Campus Center.

Hampton Inn (2.9 miles from Holy Cross)

www.hamptoninn.com

110 Summer Street

Worcester MA 01608

(508) 757 - 0400, 1-(800)-HAMPTON

The conference has reserved a block of 40 rooms Friday night (25 Thursday night and 5 on Saturday night). The negotiated rate is \$95 for either a single or a double. A continental breakfast is included in the room rate. The conference rate holds until March 20, 2006.

Directions to the Hampton Inn:

From the Massachusetts Turnpike:

From I-90 take exit 10 to 290 East. Take exit 16. Turn left off the ramp onto East Central St. Turn right on Summer St.

From I-495:

From I-495 take exit 25B to 290 West. Take exit 16. Turn right off the ramp onto East Central St. Turn right on Summer St.

Other connections:

From I-84 take I-90 East

From I-190 head South to I-290 West

From I-395 head north to 290 East.

From Worcester, take 122 South to Rt 9 to Worcester Center Blvd. Turn right and continue to the 3rd light, Thomas St. At the end of Thomas Street, the hotel is in front of you.

Directions to Holy Cross from the Hampton Inn:

Start out going south on Summer St. toward Central St. Merge onto I-290 W via the ramp on the Left toward Auburn. From I-290 West, take Exit 11 (College Square, Southbridge Street). Bear left coming off the ramp onto Southbridge Street. Take the first right (before the traffic light) onto College Street. Go up the hill and enter the last gate on the left, Gate 7. The Hogan Campus Center is the second building on the left with the large silver cross on it. Visitor parking is to the right of the Campus Center.