

**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 3.

Poster descriptions start on page 7.

Descriptions of plenary sessions and workshops start on page 11.

Map of College of the Holy Cross at [http://www.holycross.edu/about/camp\\_mapbw.html](http://www.holycross.edu/about/camp_mapbw.html)

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**Registration Chair**

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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**

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 352 at 8:00-8:40.

**Programming Contest ..... 8:00 a.m. – 12:45 p.m.**

Breakfast and registration of teams and team members ..... 8:00 a.m.-8:40 a.m.

Swords 352

Computers Available for Teams to Practice ..... 8:00 a.m.-8:40 a.m.

Swords 219

Initial Meeting..... 8:40 a.m.-8:55 a.m.

O'Neill 112

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

Swords 352

**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**

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**

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**

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**

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 Breakfast..... 7:30 a.m.-8:30 a.m.**

Hogan Reception Area outside Ballroom

**Registration .....8:00 a.m.-10:00 a.m.**

Hogan 3rd Floor Lobby/Entrance

**Vendor Displays .....8:00 a.m.-10:30 a.m.**

Hogan 320

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

**Session 3A. Papers: Information technology**

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**

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

**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

**Break ..... 11:00 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**

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**

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, University of New York, College at Brockport

Advisor: Sandeep Misra

*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 Name, Jacqueline Trillo, 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, 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 Izmirlı
- 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 Kussmaul
- 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 Kussmaul
- 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](http://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](http://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 of 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.