Brian O’Connell 1960–2008

Brian O’Connell, professor of Computer Science and Philosophy and a former President of the IEEE Society for the Social Implications of Society, passed away at the age of 47 on May 21 at his home in West Hartford, Connecticut, following a long illness. Brian will be remembered as a dear friend, caring and good-humored individual, brilliant colleague, and dedicated leader.

Brian received his B.A. from Trinity College, Hartford in Philosophy and Psychology, and J.D. from the University of Connecticut School of Law. Following a successful career as an attorney he joined the faculty of Central Connecticut State University in 1997 with a joint appointment in Computer Science and Philosophy. Brian was a noted scholar in the field of computer law and ethics and was the 1999 recipient of the Franklyn S. Haiman Award for Distinguished Scholarship in Freedom of Expression from the National Communication Association.

Brian taught courses in many subjects, both in philosophy and computer science. He taught Law, Ethics & Computing, Philosophy of Law, and Computing and Culture. His annual course in Advanced Topics in Robotics inspired many students with hands on experience with robots and electronics. He was an advisor to many students and supervised many honors theses.

Brian served SSIT as Vice-President, President, and Past-President and as a member of the Board of Governors. He was 2001 Program Chair of SSIT’s International Symposium on Technology and Society in Stamford, CT. A Senior IEEE Member, Brian held offices or committee positions in several other IEEE groups including the Computer Society, Connecticut Section, Technical Activities Board, and Sensors Council.

As a leader of SSIT, Brian worked tirelessly to develop membership, to expand SSIT’s influence by forging alliances with other groups within and outside of IEEE, and to grow the circle of leadership within the society. Many current members of the SSIT Board of Governors signed on (or stayed on) at Brian’s urging.

Brian loved his family, students, books, robots, cats, the Red Sox and Patriots (much to the chagrin of the New York partisans among his many friends and colleagues), and Celtic music. Brian was irreverent but passionate, principled but playful. He was just as likely to ride a Segway at a conference as he was to deliver a poignant keynote address. Few who met him will ever forget him.

Colleague Bob Whelchel perhaps said it best: “I hate to sound like an electrical engineer, but when he came into a room, it was like the light bulb was turned up from 50 watts to 75 watts.”

Central Connecticut State University is planning a lecture series in memory of Brian. Donations can be made to the lecture fund in Brian’s name by contacting Wendy Peek at +1 8 6 0 8 9 5 1 1 6 7 or w.peek@stonehill.edu. To share memories of Brian, please visit the blog at http://www.brianmoconnell.blogspot.com/.

-- Adapted from a note by Joe Herkert, past president of IEEE SSIT
Computer Science @ CCSU, the Changer and the Changed

Joan M. Calvert

These are exciting times for computer science at CCSU. As in all sectors of 21st century society, computing has become inextricably intertwined into the fabric of CCSU life. Core computer science research is now characterized by great diversity, and computer science faculty focus on mobile and embedded computing, Web-centric computing with local intelligence and wireless technologies, computer security and forensics, game development, bioinformatics, data and Web mining, and digital and optical science. With algorithmic thinking, computer programs, and information representation as a common thread, the art of our work is to recognize and work creatively with the natural synergy among these sub-disciplines and other disciplines.

In response to the call of the September 2006 U.S. Secretary of Education Margaret Spellings Commission report for improvement in accountability, quality, and innovation for U.S. higher education, the department maintains a clear focus on accreditation and learning outcomes. In the area of curriculum design and offerings, the department offers a B.S. Computer Science (Honors), holding full Computing Accreditation Commission of ABET accreditation, and a B.S. Computer Science (Alternative) degree. Our major was, in fact, one of the first such programs offered in New England. Dr. Bradley Kjell of the CS department has served on visiting ABET accreditation teams and currently serves as our accreditation officer. On the graduate level we offer the M.S. Computer Information Technology program, fully licensed and accredited in Connecticut since January 2000. The Computer Science, Management Information Systems, and Computer Electronics and Graphics Technology departments jointly offer this program across three schools of Arts and Sciences, Business, and Technology.

The Spellings Commission report also calls for increasing federal and state investment in STEM (science, technology, engineering, and mathematics) fields. In response, Dr. Stan Kurkovsky successfully led a team of faculty from the Computer Science, Physics and Mathematical Sciences to a $500,000 STEM grant award. Dr. Neli Zlatareva spent Fall 2007 on a Fulbright Scholarship she received to teach and do research in artificial intelligence and Web ontologies in Bulgaria and Dr. Zdravko Markov is working with faculty at the University of Hartford on an NSF grant to explore and develop new ways of teaching artificial intelligence.

“These are exciting times for Computer Science at CCSU.” — Photo by Bob Wessman, CCSU Photographer
Dr. Zdravko Markov receives a $250K NSF grant

According to Dr. Markov, professor of computer science at Central Connecticut State University, the project involves “developing, implementing, and testing curricular materials that teach core Artificial Intelligence topics using a unifying theme of machine learning. Machine learning involves developing systems or programs that improve on their performance based on experience.”

He is working with Dr. Ingrid Russell, professor of computer science at University of Hartford, to develop curricula to provide university students with machine learning experiences in the property of machines or their programs that is widely known as “Artificial Intelligence,” often abbreviated as “AI.”

“The project is funded by NSF’s Course, Curriculum, and Laboratory Improvement (CCLI) program, which seeks to improve the quality of science, technology, engineering, and mathematics (STEM) education,” according to Dawn Pierpoint-Grzan, CCSU’s director of sponsored programs. “Some 281 proposals in all three areas that were funded and one of nine funded in computer science. The current work builds on Markov’s and Russell’s success in an earlier AI project, also funded by the National Science Foundation.”

“Artificial intelligence has been under development in one form or another for over 50 years,” Markov says. “MIT Professor John McCarthy coined the term in 1956, and defined AI as ‘the science and engineering of making intelligent machines.’ The term also describes the intelligence that systems can demonstrate.”

During the project, 26 modules that will be developed to be closely integrated into a one-term AI course. Each module will involve designing and implementing a machine learning system in a specific application. The applications span a large area including network security, recommender systems, game playing, intelligent agents, computational chemistry, robotics, conversational systems, cryptography, web document classification, vision, data integration in databases, bioinformatics, pattern recognition, and data mining.

The project will introduce students to an increasingly important research area in computer science and provide an opportunity for them to apply AI problem-solving techniques to a real world application.

—Original story by Geri Radacsi
Artificial intelligence—that branch of computer science studying how to endow computers with capabilities of human intelligence—has fascinated Dr. Neli Zlatareva since the 1970s. “Imagine, the AI knowledge gained in the ’60s, ’70s, ’80s, and ’90s has come together so we are seeing amazing results today,” says the computer science professor. “Without the advances made in AI, we wouldn’t have the Web with all of its capabilities, such as intelligent browsing and data mining.” Zlatareva, a native of Bulgaria, whose undergraduate work was done in Moscow, holds the doctorate in computer science from the Higher Institute of Mechanical and Electrical Engineering, Sofia, Bulgaria. She joined CCSU in 1992 and has an extensive background in AI, in expert systems development and maintenance, and in functional and logical programming. Her latest research is in knowledge verification, validation and refinement, and non-monotonic reasoning. To date, she has authored or co-authored more than 70 publications in these areas.

If this extensive scholarship seems dizzying, Zlatareva, with her amiable smile, makes it comprehensible. AI, she explains, “allows us to write computer programs to solve complex tasks requiring intelligent thinking and problem solving.” It comprises several areas. Games playing, for example, such as the super-computer Deep Blue defeating world chess champion Gary Kasparov.

Expert systems—another AI area—deals with programming computers to make decisions in real-life situations. Some expert systems help medical practitioners diagnose diseases based on symptoms. An auspicious area of AI is neural networks, which have been proven useful in voice recognition and natural-language processing, allowing people to interact with computers without needing any specialized skills.

Robotics, another AI domain, encompasses programming computers to see, hear, and react to other sensory stimuli, for example, in exploring the ocean.

What all these AI applications have in common is knowledge. How reliable is this knowledge? So much depends on the competence of the system, Zlatareva cautions: “If the system processes incomplete or incorrect knowledge, the computer’s advice should not be taken.”

This is where Zlatareva’s scholarship enters the picture. During the 1980s, the professor’s theoretical work revolved around ways to represent knowledge which is imperfect. In the 1990s, she developed techniques and tools for formal verification of computer knowledge, which is called knowledge bases, to prove their correctness, consistency, and completeness.
“One emphasis of my research has been in evaluation and quality assurance of Knowledge-Based Systems (KBS),” says Zlatareva, “to ensure structural and functional properties of a KBS, which is critical for its success as an application product.” Quality assurance of KBSs is a very broad field, which includes verification of knowledge bases; validation of KBS performance; generation of test cases for system testing; knowledge base refinement, restructuring, updating, and maintenance. “I believe KBS quality assurance can only be achieved if all these issues are tackled from a common perspective,” elaborates Zlatareva. “My earlier work (before 1999) was concerned primarily with the development of efficient verification techniques for rule-based systems and system testing. However, no matter how good a verification procedure is, the system may still be unacceptable if it is not properly validated and maintained during its entire lifecycle.” Zlatareva turned her energies to developing an automated refinement procedure for updating and revising system knowledge. During a past sabbatical leave, she says, “I conducted research on application of genetic algorithms in machine learning and theory refinement intended to address this issue. This resulted in a novel technique for restructuring rule sequences capable of improving both the correctness of the knowledge base and the efficiency of KBS performance.” The research was summarized in a paper presented at the 14th International Florida Artificial Intelligence Research Symposium Conference, 2001, and it appeared in the conference proceedings published by the American Association on Artificial Intelligence (AAAI Press), the most prestigious publisher for AI research. Another outcome of her research in machine learning was a joint paper with colleagues Dr. Zdravko Markov, CCSU associate professor of computer science, and Ingrid Russell (University of Hartford) on how machine learning can be incorporated into an undergraduate course. Their paper was presented at the 2003 International Conference of Artificial Neural Nets and Neural Information Processing and published in conference proceedings.

Of late, Zlatareva has been pursuing research evaluating non-monotonic knowledge bases. Generally, the term “non-monotonic” covers inferences in which reasoners draw conclusions tentatively, reserving the right to retract them in light of new information. “We want our computer program to retract its previous conclusions when presented with new facts. If we want to have a realistic, large-scale knowledge base, we have to know how to represent and verify non-monotonic knowledge,” she states. Results of Zlatareva’s research were reported at the 17th International FLAIRS Conference, 2004, and at the 19th International FLAIRS Conference, 2006, and appeared in the conference proceedings. Zlatareva envisions creating an implementable framework for verification of large knowledge bases, such as those on the Web, to ensure consistency, coherence, non-redundancy, and completeness. “There’s so much artificial intelligence on the Web,” she says, undaunted and eager to learn what she’ll discover.

Original story by Geri Radacsi

Photo by Bob Wessman, CCSU Photographer

“Accomplishments as a Scholar”

Newest Research Challenges

“If we want to have a realistic, large-scale knowledge base, we have to know how to represent and verify non-monotonic knowledge”
Enlivening his teaching by tackling the latest developments in computer technologies, Kurkovsky has written and published on pervasive computing contributing book chapters to encyclopedias and handbooks for professional applications. He has spread his knowledge and ideas by presenting papers at national and international conferences. Just last December he was invited to present a paper on pervasive computing at an information technology conference in Cairo, Egypt. This April he co-authored with students and presented another paper at a computer science conference in Las Vegas, which is sponsored by the Institute of Electrical and Electronics Engineers (IEEE), a premier professional organization in computer science.

Recent Accomplishments
Invited to serve as an Associate Editor, The International Journal of Grid and High Performance Computing, IGI Global.
Invited to serve as a Member of the Editorial Board for the International Journal of Multi-media and Ubiquitous Engineering, SERSC.

Book chapters

Journal paper

Conference papers
Four Roles of Instructor in Software Engineering Projects: a Survey. Accepted to The 13th Annual Conference on Innovation and Technology in Computer Science Education (ITICSE 2008), Madrid, Spain, June 30-July 2, 2008.


Book review

Selected as a Featured Reviewer for the ACM Computing Reviews, January 2007.

Served as a reviewer for the National Science Foundation Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) program, January 2008.
Robert White, Computer Science adjunct, sculptor, child advocate and volunteer at the Mountain Laurel Sudbury School in New Britain (www.MountainLaurelSudbury.org) has been very busy.  

**Intro to Computer Graphics**  
Bob’s goal in teaching Introduction to Computer Graphics course at CCSU, is to produce abstract designs and images, with special emphasis on color forms, shapes, texture, and basic design, and urges students to be creative. “We need to encourage imagination,” says Professor White. “Future problems in the world will require creative minds.” Student comments include “Professor White is a gift to CCSU. He makes people want to learn and do well. He truly loves what he does. Thank you for your enthusiasm, creativity, and smiles.” Another student commented that “Mr. White opened the door and gave opportunities to explore creativity.”

**Sculptor**  
At his studio A Shop for Dreamers, he has created several versions of the Harry Potter world of Hogwarts, the Mother Grok (a sound sculpture), walking robots, and many unique sculptures. His work is often on display at libraries and other locations around the state.  

**Child Advocate**  
Bob publishes “Voices from the Field”, A Dialog with Youth in the 21st Century. He was encouraged by numerous experiences with children to create the publication, which tries to enable and project the voices of kids and to show them that others take their thoughts and themselves seriously. Recently, Josh, an 8 year-old who has never written poetry, asked Bob to help him write a poem. Bob says that Josh worked on the piece for half an hour, correcting and changing. The result of his first poem was:

**Volunteer Teacher**  
The Mountain Laurel Sudbury School is based on the model established by the Sudbury Valley School in Framingham in Massachusetts. Founded in 1968, Sudbury Valley pioneered an education method in which students learn by satisfying their curiosity and taking responsibility for the decisions that steer their daily lives.

In his spare time, Bob can be found at one of the local parks taking photographs of nature.

Let me take to my heart  
When Summerland runs free  
Where I laughed and I played  
While my good parents paid  
And left me  
Their child  
To be me.

Written by Josh on 12/31/07.

Pictured above: Bob with children at a creative arts workshop.  
Pictured below: A few of the unique sculptures found at A Shop for Dreamers.
What is the ETS Exam?

The ETS Major Field Tests are comprehensive undergraduate and MBA outcomes assessments designed to measure the basic, critical knowledge obtained and understanding achieved by students in a major field of study. The Major Field Tests go beyond the measurement of factual knowledge by evaluating students’ ability to analyze and solve problems, understand relationships and interpret material from their major field of study.

ETS offers comprehensive national comparative data gathered from all Major Field Tests taken, which evaluates students’ performance and compare the program's effectiveness to those at similar programs.

Who takes the Major Field Tests and why?

Students in any one of 16 undergraduate programs, including the Associate Degree in Business, or in an MBA program, take the Major Field Tests. The Major Field Tests include the following disciplines:

- Biology
- Chemistry
- Computer Science
- Criminal Justice
- Economics
- Education
- Literature in English
- Mathematics
- Music
- Physics
- Political Science
- Psychology

When and where do students take the exam?

Students typically take the Major Field Tests during their final year of study, after they successfully complete most of their major’s required courses. The test is administered in a proctored environment using either the paper-and-pencil or the online version.

All CCSU Computer Science – Honors students are required to take the ETS exam prior to graduation.
For almost seven years, the Computer Club has been providing Central’s student body with the opportunity to learn, experience, and research areas of computer technology that regular courses may not cover. While most members of the club are computer science majors, everyone is encouraged to attend, regardless of one’s course of study.

Computer Club is a member-driven organization, which means that every week can offer a different experience to those in attendance. A quiet and informal atmosphere contributes to a relaxed environment, where students can feel at home with their peers. As such, each meeting offers something for everyone and a potential new experience every week (depending on who shows up).

Computer Club does what its members want to do. In the past, Computer Club members have experimented with such topics as cluster computing; programming homebrew games for the PlayStation2, Nintendo DS and Nintendo Game Boy Advance; wired and wireless networking; and robotics. The Computer Club has even traveled to California, to visit the headquarters of Apple, Google, and Sun.

The club’s members aren’t a secluded group of people, and are always willing to help. In fact, many professors recommend that their struggling students visit the club’s meetings to seek help, and our members happily offer their strong mentorship and guidance on topics such as Web design, computer programming, where to find the best graphics card, and more. Students are also welcome to rehearse an oral report or presentation for their class.

Contact information

Web site: www.students.ccsu.edu/~coglec/computerclub
President: Colin Cogle
Vice President: Mike MacDonald
Treasurer: Joe Vita

Meetings

Computer Club meetings take place in Maria Sanford 314 on Wednesday nights, from 8:30 to 10:30 PM.

All are welcome to attend.
Co-Op/Intern Opportunity

Pratt & Whitney internships and co-ops enable college students to secure invaluable first-hand experience, while allowing the company to continue recruiting and developing a talented workforce. Students seeking either a co-op or summer internship opportunity must submit their resume online by visiting Pratt & Whitney's career website. Applicants must also complete a brief questionnaire at the time of their posting. For more information on the intern/co-op program, please visit one of the links below:

http://www.prattcareers.com
http://www.prattcareers.com/campus.asp

Computer Science Department Colloquium

EDWARD IGLESIAS
SYSTEMS LIBRARIAN
December 5, 2007

The Computer Science Department held a colloquium focused discussion of how and why to build a Topic Map. Every effort was made to demystify the process using freely available open source automation tools. In an hour Edward Iglesias, the presenter, created a very basic Topic Map based on the XTM standard. The audience was encouraged to participate by adding relationships to the subject. Once the basic structure was created a very simple XML transformation was performed using the open source Saxon processor and XSLT to generate viewable HTML pages. All software used was Open Source and readily available for download. Student and faculty feedback was very positive and we anticipate inviting Edward to one of our colloquium in Fall 08!

CS Alternate Students:
Students in the Alternate program must declare a minor.

MS CIT Program Students:
A Planned Program of Study must be approved prior to the completion of 16 credits.
Andrew Sotzing is a Spring, 2007 graduate in Computer Science. Recently, he let us know what he has been up to. “I am currently working as a software engineer at a startup in downtown San Francisco called Vox-Pop. The company is about a year and half old, and is developing a really cool web-based gaming slash social networking platform. I work with some incredibly smart and cool people, and being their 11th employee, I get to have a lot of input into company decisions, and am getting a lot of great experience with new technologies. It’s also located halfway down Pier 9 where we enjoy panoramic views of the Bay.

When I’m not working downtown, I help run an art gallery in the Mission District of the city, that two friends and I started in October. You can check out the gallery’s website at www.goforaloop.com.

Things are going very well and I really love the Bay area. It’s definitely the place to be for CS grads looking to get involved in the bleeding edge of the tech world. While there’s definitely a lot of competition for good programming jobs, specifically from the UC Berkeley and Stanford graduates, it’s amazing how far a positive attitude and a solid grasp of CS concepts will get you. Though CCSU may lack some of the name recognition of the big west coast tech schools, I always make a point of telling interviewers/coworkers how happy I am with the education I received there and how much I admire and respect the CCSU faculty.”

While attending CCSU, Andrew served at President of the Computer Club.
The Gamma Chapter of Upsilon Pi Epsilon at Central Connecticut State University

To be eligible to join The Gamma Chapter of Upsilon Pi Epsilon Honor Society at CCSU, you must be a Computer Science Major and maintain a grade point average of 3.5 or greater. For more information about UPE contact Dr. Irena Pevac at pevac@ccsu.edu.

_Dedicated to preparing students for successful computing careers._

_Distinguished Honors in Computer Science_

Congratulations to all the Computer Science Majors who have maintained a grade point average of 3.5 and higher.

**CS—Honors Program**
- Justin Babey
- Tommy Carpenter
- Anthony DeCusati
- Justin Gatzen
- Caleb MacDonald
- Joseph Sinkiewicz
- Jeffrey Sorbo

**CS—Alternative Program**
- Courtney Arp
- Thang Dao
- Lori Harris
- Brendan T. Kearney
- Kyle MacDougall
- Manika Pol
- Andreas Theodoropoulos