

Research Portfolio
The College of Computing and Information
University at Albany/SUNY
DRAFT -- 11/7/2007 5:22 PM

Research at the University at Albany's College of Computing and Information seeks to understand the impact of computing and information in a variety of settings, and develop the next generation of computing and information systems. This research ranges from an examination of the fundamental principles that underlie computing and information to the adaptation and integration of computing and information by individuals and groups in specific domains. What is unique about UAlbany's portfolio is the level to which we integrate this spectrum of research – theories, components, systems, and practice – into a comprehensive approach to building computing and information systems to address the computing and information needs of individuals, industry, government, and society for years to come.

This integration is prominent in two major themes that permeate much of our research and are the emphasis of this faculty search:

Information, Government, and a Democratic Society (IGDS)

Effective use of computing and information technologies is a cornerstone of an informed citizenry and a foundation for good government. Advanced computing systems enable groups and organizations to utilize their information resources to empower individuals and communities and make our society better.

Building on UAlbany's rich history of engagement with the public sector and its strategic location in the capital city of New York State, the College of Computing and Information has a broad and active portfolio of research and outreach in this area. This research combines technology development with the investigation of social, political, and cognitive theories in general and particular settings. We study how people interact with government, public institutions, political associations, and other citizens, focusing on the social and political impacts of technology-enabled discourse. We study the information management, communication, and policy practices of government, and governmental use of information and technology to provide services, promote public safety, and record and preserve the public record. We develop advanced computing and information systems to combat terrorism, improve public health systems, and preserve and protect important societal data. And we explore ways in which these systems help us teach our children, enable democratic discourse, preserve our environment, protect our borders, and assist vulnerable populations who need assistance.

Human Computer Interaction (HCI) or Expanding Human Capabilities or Technology-Augmented Cognition or (Need a More Descriptive Term)

The amount of information in the world is vast and ever increasing. Technologies that enable users to process, access, and navigate this information have clearly demonstrated their practical and commercial value. No matter what the field, the ability to apply information more effectively has transformed the way that people live their lives, professionals do their jobs, and public and private sector organizations conduct their business. These technologies augment our human potential, enabling us to discover, create, and innovate at a level heretofore unavailable.

Current innovations such as Google are tremendously empowering, but innovation in this area is still in its infancy. New technologies that augment individual and collective capabilities will raise our effectiveness to new levels. These discoveries will rely on a close interplay between technology development and cognitive and social factors. UAlbany's interdisciplinary mix of computer and information scientists is well established and poised to expand its contributions to this area. We work on such areas as interactive question answering, modeling and simulation, multimedia information retrieval, collaborative systems, educational technology, and social robotics. Our research focuses on interaction styles and user profiles, dialogue management, and the adaptability of retrieval systems to individual contextual situations.

These two themes – IGDS and HCI – play out with different emphases across our College. In the Computer Science department, our current work emphasizes theory and component building in such areas as _____. In Information Studies, it's on _____. In Informatics, _____. To enhance our interdisciplinary efforts, many of our faculty are affiliated with cross-cutting UAlbany research centers, most notably the Center for Technology in Government, the Institute for Informatics, Logics, and Security, and the Center for Information Forensics and Assurance.

About the College of Computing and Information

The College of Computing and Information was created by the University at Albany in 2005 in recognition of the transformative influence that communication and information technologies have on nearly every aspect of modern life. The College aims to ensure that UAlbany is at the forefront of this social change.

The College brings together a number of the University's core academic and research resources related to computing and information under a single roof. The College is unique in the degree to which computing and information programs are integrated with the application disciplines, and in its focus on real-life problems. What distinguishes our research and education is the level to which the various factors – technical, cognitive,

organizational, and social – that underlie modern computing and information systems are integrated into a comprehensive set of faculty relationships, academic programs, and research partnerships. A product of many years of cooperation and team building, the creation of the College two years ago is both a symbol and an enabler of this integration. Our ability to incorporate different disciplines and these multiple factors into our work has helped ensure that our research and education on theories, components, systems, and practice remain vibrant and relevant.

One of the prime characteristics of our work is the embedding of our research and teaching in practice in actual environments. Each of the three research centers mentioned above and many of our individual faculty have developed close working relationships with practitioner communities that serve as an inspiration and guide for their research. The specific research topics that emerge are quite varied and include information retrieval, modeling & simulation, machine learning, innovation diffusion, information policy, and collaboration. Particular domains to which these insights are applied include intelligence analysis, digital government, medical informatics, student learning, anti-terrorism, information security, electronic archives, public libraries, and information security.

These themes of multiple perspectives and integration with practice have led to numerous awards and recognitions that attest to the relevance of our work. We are one of the few universities in the country who are associated with two A. M. Turing award winners – Computer Science Distinguished Professor Emeritus Richard Stearns and alumna Frances Allen. Our Center for Technology in Government has received multiple awards for its integration of research and outreach, including the Ford Foundation Award for Innovation in American Government. The Information Studies department, which traces its roots back to Melvyl Dewey, has led the American team in the international InterPARES project to explore the impact of digital records on archival practice, continuing a strong tradition of education that is accredited by the American Library Association. This last program is ranked ninth in the country by U.S. News and World Reports in Archives and Preservation, and our research partnerships with the Rockefeller College of Public Affairs and Policy have led to a #4 ranking in Information and Public Management in Public Affairs. We are collaborating with other New York institutions to create NYSGrid, an advanced technological infrastructure that is strengthening research and education across New York State. Our work attracts over \$XXM in federal and state grants annually, as we have numerous projects underway with public and private organizations.

Faculty search

The new faculty members we seek will add to our ability to conduct research and teach in these two broad themes – IGDS and HCI. We seek a mix of computer scientists, information scientists, social scientists, and researchers in libraries, government, education, and other application environments who will add to our strengths in these two areas. Collectively, these new faculty will strengthen our understanding of how to build effective computing and information systems and use them in diverse environments.

We are looking for candidates who, in addition to their research interests, will help us create a new generation of educational programs so our students can thrive in today's information-intensive society. These programs run range from relatively specialized disciplinary and professional programs to interdisciplinary programs that engage students in the multiple dimensions that affect computing and information systems. One of our goals is to ensure that every UAlbany student, no matter what his or her intended career, receives the computing and information skills that will enable them to become an informed citizen and a skilled professional. As a consequence, we are developing a new set of general education courses and integrated minors that engage students using the information technologies that they have grown up with. Priority will be given to applicants who have an interest in and experience with developing such programs.

With one of the six faculty lines we are particularly interested in expanding our HCI expertise by hiring a senior faculty member in visualization. While this person will be a generalist from a teaching perspective, we will give preference to a senior faculty member with research interests in one of two application areas – intelligence analysis or medical informatics – each of which addresses critical national research priorities within our themes described above.