GRADUATE PROGRAM IN

THE UNIVERSITY OF MAINE

SPATIAL INFORMATION SCIENCE & ENGINEERING

Program of Study

Spatial technologies are changing relations among citizen and between each of us and our surrounding physical environments. The expanding use of mobile, spatial, and context-aware technologies, the building of interoperable coordinated information infrastructures and pervasive sensor-networks, the use of location as the foundation for many current and future business and scientific information systems, and the widespread enablement of individuals to gather their own spatial data, report it to others and generate their own spatial resources are changing the way we live and communicate. The information technology sector will continue to grow and evolve over the years ahead. Those students with advanced degrees in Spatial Information Science and Engineering will help advance innovations and economic growth to make a positive difference in the lives of people.

Degrees offered include the **Master of Science in Spatial Information Science and Engineering** and **PhD in Spatial Information Science and Engineering**. These graduate degree programs focus on the design of information systems for the management and analysis of information that has a spatial component. Students are exposed to the latest concepts and technologies and we provide a solid foundation of knowledge and inquiry upon which to build sustainable careers. By the time you graduate, you will have acquired in-depth skills in problem solving, computer processing, research methods, information systems design, and multimedia communications.

The Master of Science degree requires at least 24 graduate course credits and 6 thesis credits or a 6-credit graduate project. The PhD degree requires a total of at least 42 graduate course credits (which may include up to 24 transfer credits), a dissertation proposal defense, and dissertation (12 credits of thesis).

Graduate students work hand in hand with faculty on a range of research topics. Examples of current research areas include:

- Information integration and visualization
- Intelligent spatial information retrieval
- Spatio-temporal reasoning, representation and information systems
- Geosensor networks
- Geospatial semantic wed
- Multimodal spatial cognition and interface design
- Distributed spatial computing
- Integration of perception models
- Spatial reasoning and uncertainty
- Spatial learning and navigation
- Information and location privacy
- Emergent legal, economic and policy models for spatial data and services
- Ethics driven IS design

The department also offers a **Graduate Certificate in Geographic Information Systems** for individuals who want to complete some graduate level course work, but do not have the time to complete an entire degree.

Research Facilities

Students have access to state-of-the-art software. The department maintains a range of database, GIS, statistical and programming software for teaching and research support. The department has educational site licenses for Oracle, ESRI software, Intergraph GIS and CAD software, Smallworld GIS, Idrisi and Mapinfo. Compilers and software development environments are available for common programming languages including C++, and Java, fast prototyping environments such as Visual Basic, and Prolog.

Financial Aid

For general information on the range of grants, loans and scholarships available from Federal and other sources for graduate students, contact the Office of Student Finacial Aid. A limited number of graduate research assistantships are available each year on a variety of research projects supported by external research grants. Prospective students are encouraged to contact individual faculty members to find out more about these opportunities. Students receive a stipend and tuition waiver to carry out graduate research.

Applying

Applications are processed through the Graduate School on a rolling basis and no strict deadlines apply. Those applying for campus-wide research assistantships or scholarships should complete their application packets by January 1 for September admission. Those applying for department research assistantships should complete their application packets by the end of February for September admission. A solid foundation in mathematics/statistics and knowledge of software engineering is often desired. All applicants who seek funding through graduate research assistantships should submit, in addition to the complete application package, a video of approximately 10 minutes, in which they describe their research interests, background and experience in doing independent research, and future goals. This movie should be a digital video hosted on the web (provide the URL - do not e-mail the entire digital movie) or mailed on a CD (QuickTime file).

Correspondence

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Program specific inquiries:
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Graduate Faculty

M. Kate Beard-Tisdale, Ph.D. (Wisconsin, 1988), Professor. Geographic information systems, spatial analysis, digital libraries.

Max Egenhofer, Ph.D. (Maine, 1989), Professor. Geographic database systems, spatial reasoning, GIS user interface design, ubiquitous spatial computing.

Nicholas Giudice, Ph.D. (Minnesota, 2004), Assistant Professor. Neurocognitive engineering, multimodal spatial learning, human computer interaction.

Reinhard Moratz, Ph.D. (Universitat Bielefeld, 1992), Associate Professor. Spatial knowledge representation in cognitive systems, qualitative spatio-temporal representation, human-robot interfaces, integration of spatial perception and description.

Silvia Nittel, Ph.D, (Zurich, 1994), Associate Professor. Spatial database management systems, mobile object systems, heterogeneous information systems, high performance architectures.

Harlan J. Onsrud, J.D. (Wisconsin, 1982), Professor and Graduate Coordinator for MSIS, SIE MS and PhD Programs. Cyberlaw related to spatial technologies, systems and services, location privacy, ethics driven systems design, cadastral systems.

Michael F. Worboys, Ph.D. (Birmingham England, 1980), Professor and Department Chair. Geographic information representation and reasoning, uncertainty, spatio-temporal information, human interaction issues.

Associate Graduate Faculty

Peggy Agouris, Ph.D. (Ohio State, 1992)
Renato Barrera-Rivera, Sc.D, (MIT, 1968)
Carol Bult, Ph.D. (University of New Hampshire, 1989)
Matt Duckham, Ph.D. (University of Glasgow, 2000)
Mark Jadkowski, Ph.D. (Utah State University, 1986**)**
Werner Kuhn, Ph.D. (Swiss Federal Institute of Technology, 1989)
Lars Kulik, Ph.D, (University of Hamburg, 2002)
Peter Patel-Schneider, Ph.D. (University of Toronto, 1987)
Anthony Stefanidis, Ph.D. (Ohio State, 1993)
Kathleen Stewart-Hornsby, Ph.D. (University of Maine, 1999)
Peter Suber, Ph.D. (Northwestern University, 1978)