

Geographic Information Science



University at Buffalo The State University of New York

Geographic Information Science is a rapidly emerging research field that seeks to redefine geospatial concepts and their use in the digital age. GI Science underpins all geospatial technologies, including Geographic Information Systems (GIS), global positioning systems, and remote sensing systems. GI Science provides the basis for continuing developments in these technologies.

Geospatial technologies greatly improve our ability to collect, analyze and utilize information regarding features of the Earth's surface. They penetrate every aspect of our lives – from digital maps in vehicles, to the management of city infrastructure, to the design of school and voting districts. These technologies can also be applied to solve problems of spatial representation in any domain, including medical imaging systems and genomics.

GI Science Research at the University at Buffalo

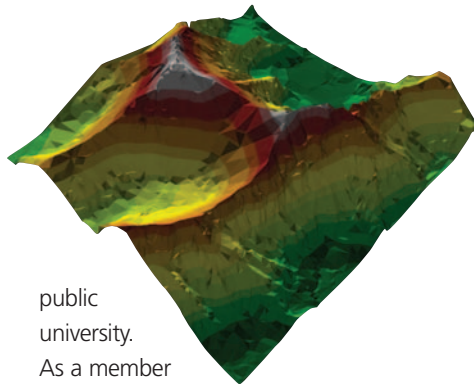
The University at Buffalo has been prominent in GI Science research and training since the mid 1970s, and is home to one of the three sites of the National Center for Geographic Information and Analysis (NCGIA).

The NCGIA was founded in 1988 as a National Science Foundation Center for research and applications of geographic methods. It is based at the University of California at Santa Barbara, the University at Buffalo, and the University of Maine. Today, the NCGIA continues as

independent consortium specializing in research, education and outreach in Geographic Information Science.

University at Buffalo, The State University of New York

Founded in 1846, the University at Buffalo is New York's premier public center for graduate and professional education and the state's largest and most comprehensive



public university.

As a member of the prestigious Association of American Universities, the University at Buffalo stands in the first rank among the nation's research-intensive public universities. Its public mission of outreach to the community, state, and nation ties a significant portion of its research and education efforts to the needs of society.

A member of the State University of New York, the University at Buffalo has an enrollment of 25,000 students and a distinguished faculty of approximately 2,000. More than 3,800 regional, national and international employers recruit UB students each year.

DOCTORAL STUDIES IN GEOGRAPHIC INFORMATION SCIENCE

GI Science

Environmental Engineering

Industrial Engineering

Computer Science

Anthropology

Philosophy

Geography

Geology



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Exceptional funding opportunities for doctoral students!

The University at Buffalo offers a doctoral degree concentration in Geographic Information Science – an emerging interdisciplinary field that incorporates innovative research in environmental science, social science, information science, and engineering.

The goal of the program is to prepare Ph.D. students with the interdisciplinary background and the technical, professional and personal skills needed for careers in Geographic Information Science.

Students in the GI Science concentration at the University at Buffalo take a core of courses in GI Science, while also completing requirements for doctorates in any of seven discipline-based departments:

- **Anthropology**
- **Civil, Structural and Environmental Engineering**
- **Computer Science and Engineering**
- **Geography**
- **Geology**
- **Industrial Engineering**
- **Philosophy**



GI Science students obtain research training through individualized faculty mentoring, and participate in active research programs under three broad themes: Geographic Information Science, Geographic Environmental Science, and Geographic Social Science. Students also gain a wealth of practical experience through internships, international opportunities, and participation in workshops, conferences, and fieldwork.

By awarding degrees in traditional disciplines, while having an inherently interdisciplinary curriculum, the GI Science Concentration allows students to combine an innovative program of study suited to our rapidly changing world with the solid credentials of an established doctoral degree.

PROGRAM HIGHLIGHTS

Enriched fellowships* are available to applicants who are US Citizens or Permanent Residents. Other funding is available from the participating academic departments. Applications welcome!

Geographic Information Science

What is the nature of reality at geographic scales, and how can this be captured and processed by computational systems? How do people reason about geographic space and use geographic information as professionals or in everyday life? What are the multiple roles of geographic information systems in the information society? GI Scientists, including philosophers, geographers, computer scientists and industrial engineers conduct research to provide answers to such questions.

Geographic Social Science

Where is the best location for a new school or business? Why did ancient peoples locate their villages at particular locations? How can we know whether a handful of cases of a rare infectious disease, or few suspicious fires, is a meaningful cluster or just a chance occurrence? Anthropologists, geographers, industrial engineers, and other GI Science specialists provide solutions to such issues of national concern.

Geographic Environmental Science

How does location influence environmental processes? How can the integration of geographic information and methods improve the power and effectiveness of environmental models? Geographic information systems enable models of physical processes to be integrated with demographic data to assess natural and technological hazards. Environmental engineers, geologists, geographers, and other researchers work together to develop methods for addressing environmental problems.

* Two years of funding as NSF IGERT fellows, including stipends of \$30,000 per year, plus additional years of support at enriched university rates.

Application information

Applications submitted by February 1 will receive full consideration for funding for the following Fall semester. Applications will be accepted until April 15, or as funding remains available. For further information, please visit our website www.geog.buffalo.edu/giscience/ or email us at ncgia@buffalo.edu



National Science Foundation

IGERT: Integrative Graduate Education and Research Traineeship Program

