

PROGRAM PARTNERS

COLLEGE OF BUSINESS ADMINISTRATION

Information and Decision Sciences*
Economics

COLLEGE OF ENGINEERING

Civil and Materials Engineering*
Computer Science*
Electrical and Computer Engineering
Mechanical and Industrial Engineering*

COLLEGE OF LIBERAL ARTS AND SCIENCES

Mathematics
Psychology
Sociology

COLLEGE OF URBAN PLANNING AND PUBLIC AFFAIRS

Urban Planning and Policy*

* denotes core department

Argonne National Laboratory
Chicago Area Transportation Study
Chicago Transit Authority
Illinois Department of Transportation
Motorola
Regional Transportation Authority

UIC ACADEMIC DEPARTMENTS

DOMESTIC RESEARCH PARTNERS

FOREIGN RESEARCH PARTNERS

National University of Singapore
INRIA
Aalborg University
Ecole Polytechnique Fédérale de Lausanne
Technische Universität Braunschweig

ABOUT CHICAGO AND UIC

Chicago, the third-largest city in the US, is well known for its brilliant architecture, vibrant culture and rich history. Situated on the shore of Lake Michigan, Chicago is a city of both natural beauty and urban diversity. In addition to being a center of economic activity, Chicago serves as a hub of local, regional, national and international transportation systems both public and private.

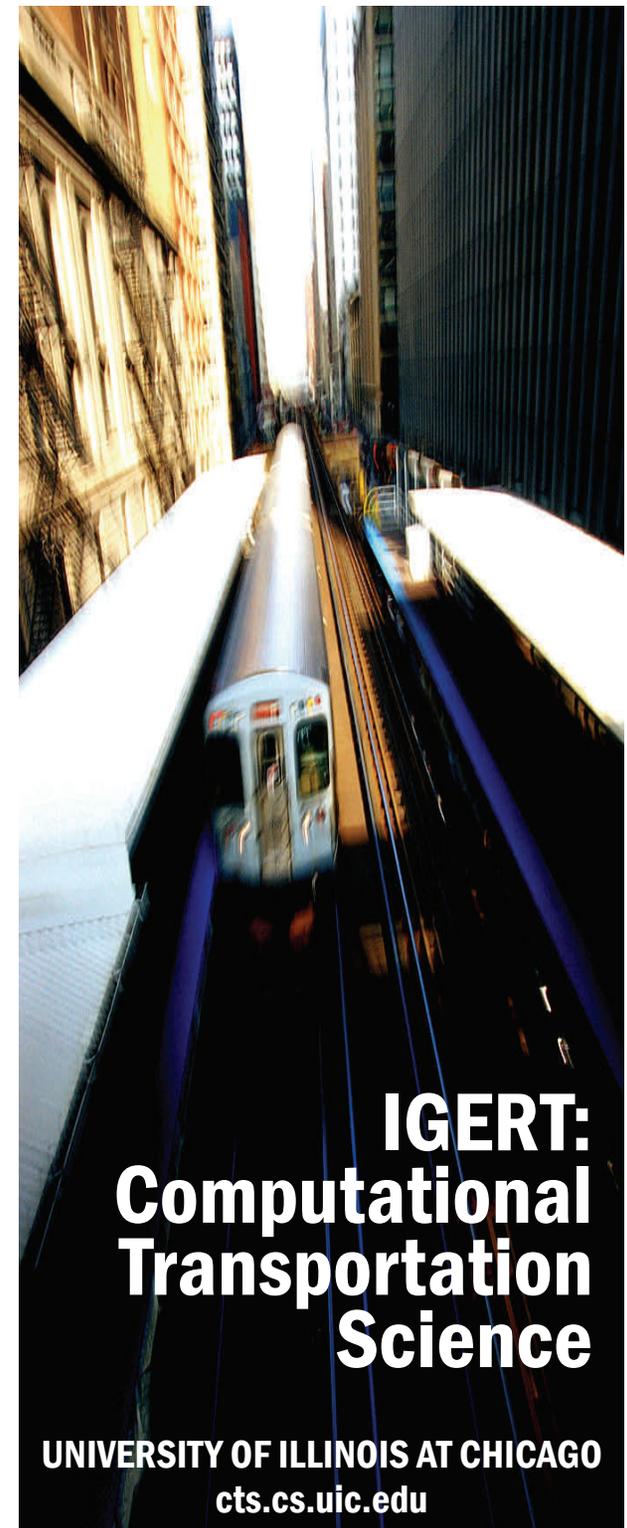
UIC is the largest public research university in the Chicago area and its 25,000 students comprise one of the most diverse student bodies in the country. It ranks among the top 50 universities in the US for federal research support. Research strengths at UIC include transportation planning, computer science, engineering, and information and decision sciences. Students and faculty conduct their research through a number of specialized research centers and laboratories.

UIC's dedication to improving the quality of metropolitan life is embodied by its Great Cities Commitment, through which students join faculty and staff in community, corporate, government and civic partnerships.

CTS IGERT

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IGERT: Computational Transportation Science

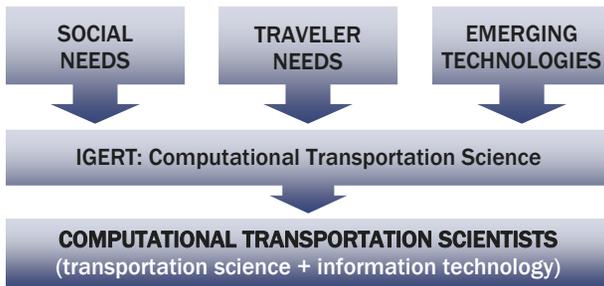
UNIVERSITY OF ILLINOIS AT CHICAGO
cts.cs.uic.edu

COMPUTATIONAL TRANSPORTATION SCIENCE

Computational Transportation Science (CTS) is a new multidisciplinary doctoral training program at the University of Illinois at Chicago aimed to educate specialists in the information technology aspects of transportation science. CTS researchers develop technologies in which sensors, travelers' computers (e.g., PDAs), in-vehicle computers, and computers in the transportation infrastructure are integrated into a collaborative environment. They also investigate how these technologies are adopted and the implications of their adoption. The envisioned environment will enable solutions to transportation problems ranging from dynamic ride-sharing, real-time multi-modal routing and navigation, to autonomous/assisted driving, to inferring travel patterns via data mining.

Recent trends focusing on sensor networks, spatio-temporal information, and mobile databases provide the starting point for our education and research program. However, this research is still in its infancy, as existing systems cannot cope with the dynamism and scale of transportation environments.

The Computational Transportation Scientists will develop the basis for the necessary technology components. We will develop a hierarchy of protocols, communications systems, data models, and interfaces that scale gracefully over individual travelers and the infrastructure; and algorithms for collecting the appropriate data, abstracting it, sharing it, and retrieving it as needed.



THE PROGRAM

CTS is funded by the National Science Foundation via an Integrative Graduate Education and Research Traineeship (IGERT) grant. The grant provides two-year IGERT fellowships to 25-30 Ph.D. students over a five-year period, as well as supporting a new curriculum and internship training for students.

The main components of the Ph.D. program are course-work, research projects, and the Intelligent Traveler Assistant (ITA) experimental prototype that demonstrates the research results. Some of the research projects and prototype development will be done in collaboration with our partners through internships. Students are encouraged to take advantage of the program's funding for international internships.

RESEARCH THEMES

Information Management and Communication

- Data modeling, acquisition, maintenance and prediction
- Data mining and analysis
- Wireless networking
- Mobile peer-to-peer data management
- Information security for transportation systems

Software Tools and Support Services

- Sensor fusion and computer vision
- Regional planning
- Cost modeling and pricing
- Routing and travel-time prediction

Human and Social Factors

- Human-computer interaction
- Privacy of personal information, safety
- Socio-economic and institutional issues



STUDENTS

Requirements for applicants:

- US citizenship or permanent residence
- BS or MS degree in computer science, urban planning and policy, civil and materials engineering, mechanical and industrial engineering or information and decision sciences
- Strong undergraduate or graduate record and GRE scores

Benefits for IGERT fellows:

- Support at \$30,000/year for two years
- Additional support beyond two years through departmental assistantships
- Full tuition and fees
- Equipment and travel allowances for the duration of studies
- International and/or industrial internships
- Opportunity for a unique interdisciplinary education with advisors from more than one field
- Availability of one of the best computational resources/infrastructure in the country

TO APPLY

UIC applicants and current Ph.D. students are invited to apply to the CTS IGERT program. You must also apply to, or be currently enrolled in, a Ph.D. program in one of our core departments. Applicants should complete the CTS application form and submit a current resume, most recent transcripts, and a one-page summary of research experience and interests to the CTS IGERT Program Coordinator. Detailed application instructions are available at cts.cs.uic.edu.

