

Construction Engineering

School of Civil and Environmental Engineering

Graduate Studies
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Technological and managerial evolution of the construction industry during the last two decades demands a new generation of modern construction professionals. To successfully compete in national and international arenas during all phases of a project, construction organizations need engineers with strong leadership and interpersonal skills that complement solid technical and management competence. These professionals lead project construction through vision, strategic planning, engineering and communication. They also work within integrated project teams and are committed quality, sustainability, and innovative technologies.

Students who study at Georgia Tech will learn methods to build civil infrastructure projects by effectively controlling the project cost and duration, while meeting safety, quality, environmental and other criteria. Established methods are taught in a variety of courses while graduate students have the opportunity to assist in researching new ones.

Georgia Tech focuses on innovative research in construction engineering where students participate in state-of-the-art basic and applied projects in construction information technology, infrastructure sensors and sensor systems, construction data modeling and visualization, knowledge management for decision support systems, and other advanced technology-based areas. The interdisciplinary nature of construction engineering encourages students to supplement graduate courses in civil and environmental engineering with those from other areas at Georgia Tech, such as Computer Science, Electrical and Computer Engineering, Building Construction, and Industrial and Systems Engineering.

OPPORTUNITIES

Georgia Tech offers a collaborative environment for students, faculty, and staff across campus that allows success. A strong and active research program in Construction Engineering and Management funded by the National Science Foundation (NSF), Construction Industry Institute (CII), Georgia Department of Transportation (GDOT), National Cooperative Highway and Research Program (NCHRP), foundations, and various industry partners provide an excellent complement to the educational component of the program.

NATIONALLY RANKED

Georgia Tech's construction-related programs are nationally recognized. Georgia Tech is the largest producer of engineers in the country, and is ranked as the fourth best engineering university in the nation (second best public university for engineering). Georgia Tech's Civil and Environmental Engineering area is ranked #4, Industrial and Systems Engineering/Logistics area is ranked #1, City Planning is ranked #2 and Aeronautical Engineering is ranked #2. The diversity and strength of these programs provide students with the unique opportunity to specialize in many areas. Recent research in proactive work zone safety, material tracking, asset tracking, building information modeling, visualization and augmented reality, infrastructure/asset management, asset monitoring, and many other areas reflect the range of research conducted by construction researchers. The faculty expects the graduates of the program to be well educated on the latest technologies, concepts, and ideas in the construction and infrastructure community.



ATLANTA AREA

Georgia Tech students work with some of the leading construction and infrastructure researchers in the country, and the rapidly growing Atlanta region provides a living construction laboratory. Students study first-hand what makes successful construction projects. Site visits are often conducted to infrastructure sites such as highway and bridge construction, high-rise buildings, capital intensive facilities such as power plants, the world's busiest airport, tunnels, and other unique construction projects.

In addition, throughout the year, various activities are organized by construction and infrastructure oriented students. Recent outings include construction seminars that include representatives from local and regional construction companies, golfing, barbecuing, and other outdoor activities such as visiting Savannah, the Atlantic and Gulf of Mexico beach.

RESEARCH AREAS

The current research interest areas of faculty include: Information Technology; Visualization; Simulation; Building Information Modeling; Knowledge Management; Civil Infrastructure Systems; Sensor Systems; Construction Surveying; Pro-Active Real-Time Safety; Productivity; Progress Monitoring; Cost Control; Project Planning; Automation and Robotics; Connected and Intelligent Worksites; Machine Positioning,

Guidance, and Control; Real-time Optical and Wireless Sensing; Spatial Sensing and Modeling; Resource Tracking and Monitoring

Research Facilities include unique laboratories for construction engineering research and education:

- The Construction Information Technology Laboratory (CITL) is a research facility equipped with small scale, photorealistic infrastructure models that operate as preliminary research test beds, and visual and spatial sensing equipment, such as high resolution video cameras, spatial cameras and other.
- The Real-time Automated Project Information and Decision Systems laboratory (RAPIDS) is a research facility used in the development and application of sensing technologies to collect and process construction and transportation related infrastructure data so as to support real-time decision making. The facility is equipped with optical and wireless technologies (laser scanner, RFID, Ultra-Wideband, optical sensors, and many more).

COURSES

- Construction Engineering Management
- Planning, Scheduling and Estimating

- Construction Economics
- Construction Law and Ethics
- Project Planning and Control
- Building Information Modeling
- Construction Equipment and Methods
- Design for Safety
- Construction Best Practices
- Construction Seminar
- Remote Sensing
- Construction Automation and Robotics
- Infrastructure Systems
- Computer-Aided Engineering/Design
- IT Based Infrastructure Management
- Many other courses

FACULTY

Ioannis Brilakis, Ph.D., Assistant Professor

Computing and information technologies; visual pattern recognition technologies; wireless communication and networking technologies; knowledge extraction and management; intelligent automation of construction tasks; infrastructure conditioning assessment; modeling, sensing, and management; project control systems and field management technologies; communication, collaboration and coordination technologies.

Jochen Teizer, Ph.D., Assistant Professor

Construction engineering and management; automation and robotics; real-time and wireless sensing and modeling; pro-active safety; resource tracking; project monitoring and control; virtual real-time environments; inference management, and emerging technologies and applications.



To receive application materials and information regarding graduate studies, please contact the School of Civil and Environmental Engineering, Graduate Program, Georgia Institute of Technology, Atlanta, GA 30332-0355, Phone: +1-404-894-2246, Fax: +1-404-385-0571, E-Mail: gradinfo@ce.gatech.edu, Website: <http://www.gradinfo.ce.gatech.edu/>

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