



# Department of Civil, Architectural, and Environmental Engineering (CAEE)

Introduction to CAEE

Graduate Programs

Academic Year 2024-2025

# **CAEE GRADUATE PROGRAMS**

<https://www.iit.edu/caee/programs>

# We offer 4 main types of graduate programs

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## **Master of Engineering**

30 credit hours

Coursework only

Typically 3 to 4 semesters

## **Master of Science**

32 credit hours

Coursework

Research & Thesis

Typically 4 semesters

## **Doctor of Philosophy**

84 credit hours

Coursework

Research & Dissertation

3-5 years beyond Masters

## **Certificate**

9-12 credit hours

Coursework only

Non-degree

Typically 1 to 2 semesters

# Graduate degrees offered in CAEE

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- **Master of Engineering (ME) in CAEE – 30 hours (coursework-only)**

- Architectural Engineering
- Construction Engineering & Management
- Environmental Engineering
- Master of Public Works
- Structural Engineering
- Transportation Engineering

- **Joint Master's programs – 30 hours (coursework-only)**

- Energy Systems (Joint Armour)
  - Energy Conservation/Buildings track
- Engineering Management (Joint Armour)
  - Project Management track
- Urban Systems Engineering (Joint Armour)
- High Performance Buildings (Joint Architecture + CAEE)

## Graduate Certificates

### (9-12 hours each):

- Architectural Engineering
- Building Energy Modeling
- Construction Management
- Earthquake & Wind Design
- Environmental Engineering
- Infrastructure Eng & Management
- Transportation Systems Planning

- **Research-based degrees with thesis/dissertation:**

- Master of Science (MS) – 32 hours (6-8 thesis hours)**

- Civil Engineering, Architectural Engineering, or Environmental Engineering

- PhD – 52 hours beyond MS (24-36 thesis hours)**

- Civil Engineering, Architectural Engineering, or Environmental Engineering

- Specialize in one of our areas of concentration

# **CAEE FACULTY, STAFF, AND STUDENTS**

# CAEE @ IIT: Full-Time Faculty (15) and Staff (4)

## Faculty: Structural



**Jamshid Mohammadi**  
Professor  
Vice Provost for Faculty Affairs



**Mehdi Modares**  
Associate Professor  
Grad Associate Chair



**Gongkang Fu**  
Professor



**Steve Kleps**  
Assoc Teaching Prof  
UG Associate Chair



**Matthew Gombeda**  
Assistant Professor



**Clarice Donaldson**  
Administrative Associate

## Architectural



**Edoarda Corradi**  
Assoc Teaching Prof  
IPRO Director,  
Kaplan Institute



**Mohammad Heidarinejad**  
Associate Professor



**Brent Stephens**  
Professor  
Department Chair  
Arthur W. Hill Chair



**Deborah Steimel-Clair**  
Assoc Teaching Prof  
Director, Prof & Cont  
Education in Armour



**Ray Lemming**  
Assoc Teaching Prof  
Director, Construction  
Programs in Armour



**Ivan Mutis**  
Associate Professor



**Charlotte Jackson**  
Academic Program  
Coordinator

## Environmental • Geotech



**David Lampert**  
Associate Professor



**Boyoung Jeong**  
Asst Teaching Prof



**Zongzhi Li**  
Professor



**Mohammad Miralinaghi**  
Assistant Professor

## Transportation



**Stan Johnson**  
Shop Manager



**Andrew Edwards**  
Associate Lab Manager

# CAEE @ IIT: Adjunct Faculty (20+)

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**Paul Anderson, PhD**  
Retired, IIT Associate Professor



**Abbas Divani, PhD, PE**  
Civil Engineer, Illinois DOT



**Steven Barrett, PE**  
Fire Protection Engineer III, SmithGroup



**August (Gus) Domel, PhD, SE, PE**  
Principal, Engineering Systems, Inc.



**Julide Bozoglu, PhD**  
Director of Digital Practice, Goettsch Partners



**Larry Dorn, MS**  
Architecture/Construction Consultant



**William (Bill) Briggs, EdD**  
President, Dr. Elzie Young Community Center



**Bill Franek, PhD, PE**  
Retired, IL EPA



**Michael Desch, PhD**  
Staff Engineer, AISC



**Don Grabowski, PE**  
VP Rail Services, GSG Consultants



**Ferdinand Dimailig**  
Principal, BOX Studios



**Christopher Haite**  
Senior PMIS Implementation Specialist, AECOM



**Mojtaba Dirbaz, PhD, PE**  
Discipline Manager, L&T Technology Services



**Soliman Khudeira, PhD, PE, SE**  
Section Chief, City of Chicago



# CAEE @ IIT: Adjunct Faculty (20+)

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**Anatol Longinow, PhD, PE**  
Retired Consultant, WJE



**Ajit Naik, PE**  
Director of Building Performance Analytics  
Baumann Consulting



**Ibrahim Osman, PhD**  
Asst Vice President, Bowman Consulting



**Juan Quiroz, PhD, PE**  
Principal Structural Engineer, Stantec



**Laurence Rohter, MS, PE**  
Senior Science Advisor, IITRI (retired)



**Rich Schultz, PhD, GISP, CPG**  
Assoc Res Scientist, Prairie Research Inst  
President, IL GIS Association



**Sania Seilabi, PhD**  
Postdoctoral Fellow, University of Buffalo



**PS Sriraj, PhD**  
Director, UIC Urban Transportation Center



**Lipika Swarup, PhD**  
Project Controls Specialist III, Fermilab



**Jennifer Wilkie, PhD, PE**  
Principal Engineer, Jacobs Engineering



**Rebecca Wingate, PE**  
Program Manager, Association of American Railroads



**Chris Winnie, PE**  
Mechanical Engineer III, SmithGroup



**Tommy Zakrzewski, PhD**  
Principal, Director of Building Eng. Physics, HKS



# Faculty highlights - Awards



**Edoarda Corradi**  
Associate Teaching Professor  
**2023 Outstanding Faculty Advisor Award**  
U.S. Department of Energy  
Solar Decathlon Design Challenge



**Gongkang Fu**  
Professor  
**2022 TRB Roy W. Crum**  
**Distinguished Service Award**



**Mohammad Heidarinejad**  
Associate Professor  
**2023-24 Sigma Xi/IIT Award**  
**for Excellence in University Research**  
**ILLINOIS TECH**



**Brent Stephens**  
Professor and Department Chair  
Arthur W. Hill Endowed  
Chair in Sustainability  
**2024 ISIAQ Academy of Fellows**



# Faculty highlights – Expertise



**Gongkang Fu**

## Time, money, lost business are part of hefty price tag to rebuild critical Baltimore bridge



**Minnah Arshad**  
USA TODAY

Published 5:23 a.m. ET March 27, 2024 | Updated 12:39 p.m. ET April 2, 2024

<https://www.usatoday.com/story/news/nation/2024/03/27/francis-scott-key-bridge-rebuild/73110543007/>



**Brent Stephens**

## Public Health Officials Should Urgently Prioritize Reducing Exposure to Indoor Fine Particulate Matter, New Report Recommends

News Release | January 19, 2024



<https://www.nationalacademies.org/news/2024/01/public-health-officials-should-urgently-prioritize-reducing-exposure-to-indoor-fine-particulate-matter-new-report-recommends>



**Mohammad Heidarinejad**

## Heat Study: Chicago Temperatures Vary As Much As 22 Degrees Between Neighborhoods

**BORDERLESS**

<https://borderlessmag.org/2024/01/29/chicago-heat-map-campaign-heat-vulnerability-index-disaster-disrupters-northwestern-university/>

# Faculty highlights – Active research projects



VR/AR in 1<sup>st</sup> Year Engineering  
Corradi and Mohammadi - \$64k



Sorbent-amended caps for PFAS contaminated sediments  
Lampert - \$100k (Phase 2)



Fly ash in precast concrete  
Gombeda - \$1M



Early strength tension-driven high strength concrete

Gombeda - \$56k



Forecasting harmful algal blooms with unmanned systems  
Lampert - \$80k (\$250k total; PI OSU)



Transport of PFAS to surface waters  
Lampert - \$250k (IWRC)



North Branch Chicago River Nutrient Assessment & Reduction Plan

Lampert - \$32k (\$368k total; PI Geosyntec)



Bridge element deterioration curves  
Fu - \$150k



PFAS bioaccumulation in contaminated sediment  
Lampert - \$200k (NOAA)



NSF Innovation Engine: Great Lakes ReNEW  
Lampert - \$200k Y1-2 (up to \$160M total, 50+ orgs)



Operationalizing transit signal priority  
Miralinaghi - \$37k



NSF SAI: Stormwater Resilience in Urban Areas  
Lampert - \$750k (Senior Personnel: Stephens)



i-learn: empowering learning using mixed reality and machine learning

Mutis - \$550k (NSF)



Sources and sinks of oxidative PM  
Stephens & Heidarinejad & - \$249k (NSF)



Mixed reality for eng. design interpretation in construction eng. mgmt.

Mutis - \$300k (NSF)



Low-cost stream trap failure detection and radiator control

Heidarinejad & Stephens - \$100k+



LEAP: robot technology in construction industry

Mutis - \$75k (NSF)



Swamp cooler filtration solutions for wildfire smoke

Stephens & Heidarinejad - \$200k (\$1M total, PI: Public Health Institute)



Louis Stokes STEM pathways

Mutis - \$75k (NSF)



Air filtration for military veterans with COPD  
Stephens & Heidarinejad - \$1M + \$300k suppl (with Jesse Brown VA Medical Center)

Active: \$2.5M  
In negotiation: \$900k  
In closeout: \$2.2M

# Student highlights – Student Organizations

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- **Student organizations** involving CAEE students include:
  - American Society of Civil Engineering (ASCE)
  - Construction Management Association of America (CMAA)
  - Society for Environmental Engineers and Scientists (SEES)
  - Chi Epsilon - Civil Engineering Honor Society
  - Structural Engineers Association of Illinois (SEAOI)
  - American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
  - Architectural Engineering Institute (AEI)
  - Institute of Transportation Engineers (ITE)
  - Women in Transportation (WIT)
  - Engineers Without Borders (EWB)
  - Engineers for a Sustainable World (ESW)
  - Illinois Tech Railroad Club (ITRC)





# Student highlights – Student organizations: ASCE

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# Student highlights – Scholarships

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- IIT CAEE students won 4 2024 ASCE IL scholarships

## Structural Engineering Institute



Samantha Muller  
(BS ARCE)

## Geo-Institute



Prasant Kafle  
(BS CE, ME CM)



German Laiton  
Hernandez  
(BS CE)

## Transportation & Development Institute



Maritza Torres  
(BS CE)



<https://www.isasce.org/scholarships/>

# Student highlights – Scholarships

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- IIT students won 5 of 5 2023 ASHRAE IL Chapter scholarships



Samantha Muller  
(BS ARCE)



Aditya Singh  
(PhD ENVE)



Saman Haratian  
(PhD ARCE)



Jongki Lee  
(PhD ARCE)



Saeed Farhoodi  
(PhD ARCE)





# Student highlights – Profiles

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## Living Your Values as an Engineer



**Jonathan Ellison (CE '24)**

"I don't just feel accepted as an older learner, I'm actually valued."

## Merging Architectural Engineering and Computer Science



**Samantha Muller (ARCE '26, CS Minor)**

"There are not many colleges that offer an architectural engineering bachelor's degree, and Illinois Tech is consistently ranked one of the best."

## Intersecting Architectural Engineering and Public Health



**Insung Kang (PhD ARCE '22)**  
*Assistant Professor, UT-Arlington*

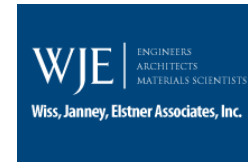
"I saw that a lot of students were given ample opportunities for hands-on projects, internships, and research that are crucial for understanding real-world applications of their studies."

<https://www.iit.edu/news/living-your-values-engineer>

<https://www.iit.edu/student-experience/student-and-alumni-stories/merging-architectural-engineering-and-computer-science>

<https://www.iit.edu/student-experience/student-and-alumni-stories/intersecting-architectural-engineering-and-public-health>

# Alumni highlights – Where do they work?



# **ADVISING & REGISTRATION**

# Courses, advising, and registration

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- Most degrees can be taken **part-time** or **full-time**
  - Typical full-time load is 9 credit hours per semester
    - Can take more or less depending on your situation
- **Many** classes are taught in the **evening** and/or **available online**
  - View course schedules:
    - [https://ssb.iit.edu/bnrprd/bwckschd.p\\_disp\\_dyn\\_sched](https://ssb.iit.edu/bnrprd/bwckschd.p_disp_dyn_sched)
  - View program descriptions:
    - <https://www.iit.edu/caee/programs>
  - View course descriptions:
    - <http://bulletin.iit.edu/graduate/courses/cae/>
    - <http://bulletin.iit.edu/graduate/courses/enve/>
  - View historical course offerings:
    - <https://www.iit.edu/caee/student-resources>
  - International students on F-1: maximum 1 class online per semester

# Courses, advising, and registration

Academic Calendar Task	Deadline
Last Day to Add/Drop Classes	2 weeks into semester
Last Day to Withdrawal from Classes	11 weeks into semester
Request an Incomplete Grade ( <b>form initiated by student</b> )	Before final exams

<https://www.iit.edu/registrar/academic-calendar>

Program(s)	Primary Advisor	Email
Construction Engineering & Management Engineering Management	Ray Lemming	<a href="mailto:rlemming@iit.edu">rlemming@iit.edu</a>
Architectural Engineering Energy Systems Engineering Environmental Engineering Urban Systems Engineering	Dr. Brent Stephens	<a href="mailto:brent@iit.edu">brent@iit.edu</a>
Structural Engineering	Dr. Mehdi Modares	<a href="mailto:mmodares@iit.edu">mmodares@iit.edu</a>
Transportation Engineering Public Works	Dr. Zongzhi Li	<a href="mailto:lizz@iit.edu">lizz@iit.edu</a>

<https://www.iit.edu/caee/student-resources/graduate-academic-advising>