



## Soft Computing in Structural Engineering and Engineering Mechanics

UNDERGRADUATE SUMMER SCHOOL (3-WEEK ONLINE PROGRAM)  
AUGUST 12 - SEPTEMBER 10, 2021  
APPLICATION DEADLINE: MAY 31



### Grainger College of Engineering

Department of Civil Engineering Rankings

### #2 Graduate Program

Civil Engineering

**Program Fee: \$750**

### Apply Here



<https://www.get.illinois.edu>

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伊利诺伊大学全球教育与培训 

## Program Description

This program introduces students to a new paradigm in engineering analysis and design that leverages revolution in data sciences, neural computing and machine learning.

## Program Schedule

<b>8/12 - 8/13</b>	TECHNOLOGY & ORIENTATION
<b>8/16 - 8/20</b>	READING WEEK
<b>8/23 - 8/27</b>	TEACHING WEEK
<b>9/6 - 9/10</b>	FINAL PROJECTS & PROGRAM WRAP-UP

TEACHING ASSISTANTS WILL SUPPORT A 1-HOUR DISCUSSION DAILY FOR BOTH SEMINAR AND READING WEEK.

## Online Format

Videoconference lectures will be synchronous.

Participants will need access to Wi-Fi and a device (computer, laptop, or tablet) suitable for participation in online videoconference sessions.

# UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN FACULTY



## DR. AHMED ELBANNA

### *Associate Professor, Civil & Environmental Engineering*

Ahmed E. Elbanna holds a Ph.D. in civil engineering (2011) and an M.S. in applied mechanics (2006), both from the California Institute of Technology, and an M.S. in structural engineering (2005) and B.S. in civil engineering (2003) from Cairo University. He joined the faculty in 2013. His honors include the National Science Foundation CAREER award, 2018, Fellowship of the National Center of Supercomputing Applications, 2015, the George Housner Fellowship, California Institute of Technology, 2005, and a Certificate of Honor, National Ceremony of Science, Egypt, 2004.

## Program Topics

### STRUCTURAL ENGINEERING COURSEWORK (10 HOURS)

- Introduction to neural networks and deep learning
- Accelerating structural engineering workflow using artificial intelligence
- Optical fiber technologies
- Inverse analysis aided by artificial intelligence
- Students will get to play with programs like Keras, tensorflow, and Matlab

### TA-LED DISCUSSION SESSIONS (9 HOURS)

A UIUC graduate student will lead discussions and answer questions during reading week and seminar week. Readings and discussions will further the students' knowledge and understanding of the course content.

### Co-Curricular Sessions (4 HOURS)

Enriching students' experiences by providing interactive resources for planning their overseas U.S. education.

- Q&A with PhD student: graduate applications & research skills; writing academic research reports
- Graduate College: how to be a successful graduate student
- Career Services: intercultural communication and personal branding
- Program recognition & learning outcome showcase, led by University of Illinois & GET staff members

There will be an additional 7 hours combined for program orientation, preparation and presentations of student final projects, and the program closing ceremony.

## Program Details

Students must be entering second year of college or later. Instruction equips students with preparation to complete projects.

Students are expected to participate in live discussions and problem solving during each live class session.

- All classes in English
- 30 hours of engagement
- Final project required
- Certificates awarded upon completion
- Course times 8:00 a.m. - 11:00 a.m. local China time
- Classes Monday through Friday
- Minimum of 50 students needed to run program

## CONTACT OUR TEAM

**MENG LIU**, PROGRAM COORDINATOR, [MENGLIU2@ILLINOIS.EDU](mailto:MENGLIU2@ILLINOIS.EDU)

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