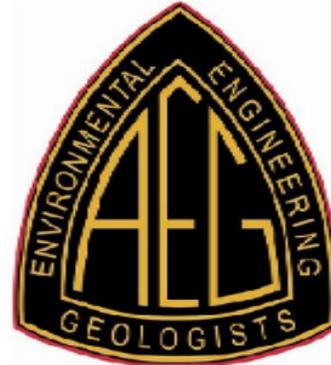




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**Arizona Chapter**



## Geotechnical Special Presentation

**Arizona Chapters for the Geo-Institute and Association of  
Engineering and Environmental Geologists**

**Presents**

### BRIDGE SCOUR AND ITS COUNTERMEASURES: MONITORING, STREAMLINING AND BIOCEMENTATION

**Julian Tao, Ph.D,  
Associate Professor at Arizona State University**

**Wednesday, September 19, 2018**

**Location and Time:**

McFate Brewing Company  
1312 North Scottsdale Road  
Scottsdale, Arizona 85257

**5:30 P.M. – 8:00 P.M.**

#### Dinner/Presentation:

\$30.00 Members and Non-Members; \$15.00 Government Employees and retirees; \$10.00 Students

Please RSVP by Monday, September 17, 2018

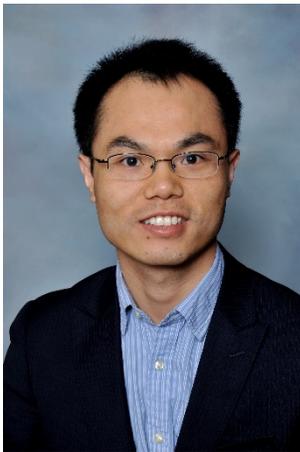
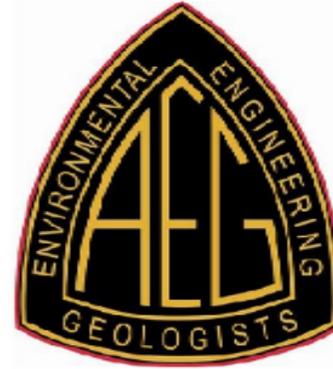
**[RSVP HERE](#)**



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**Dr. Junliang (Julian) Tao** is an associate professor at Arizona State University (ASU). He just joined the geotechnical group and the CBBG center at ASU in August. Julian was an assistant professor in the Department of Civil Engineering at the University Akron from 2013 to 2018. He holds a Ph.D degree from Case Western Reserve University. Julian was trained as a geotechnical engineer but he has keen interests in interdisciplinary research. In particular, his research on bioinspired geotechnics focuses on improving the smartness, sustainability and resilience of geotechnical designs and techniques by learning from nature. Julian also worked on a few applied research projects for Ohio Department of Transportation. He was awarded the Young Civil Engineer of the Year by the ASCE Akron-Canton Section for “promoting professionalism and the advancement of the civil engineering profession”.

**Abstract:** Bridge scour is the erosion of geomaterials around bridge foundations. It accounts for about 60% of bridge collapse in the United States. This presentation will include a brief introduction on bridge scour in general, an overview on relevant research and practices and a discussion on three types of proposed bridge scour countermeasures. The first countermeasure involves monitoring the scour depth development using a bridge scour sensor based on Time Domain Reflectometry; the second countermeasure involves streamlining the bridge piers inspired by the form of boxfish; the third countermeasure involves stabilization of the geomaterials using a polymer modified microbially induced carbonate precipitation method.