



COLLEGE OF  
**ENGINEERING, ARCHITECTURE  
AND TECHNOLOGY**

# CEAT HIGHLIGHTS

November 2020

## Announcements

**OSU engineering classes to start Fall 2021 in OSU DISCOVERY**



**Boeing Commits \$1.3 Million to Support Indigenous Communities Across the United States**



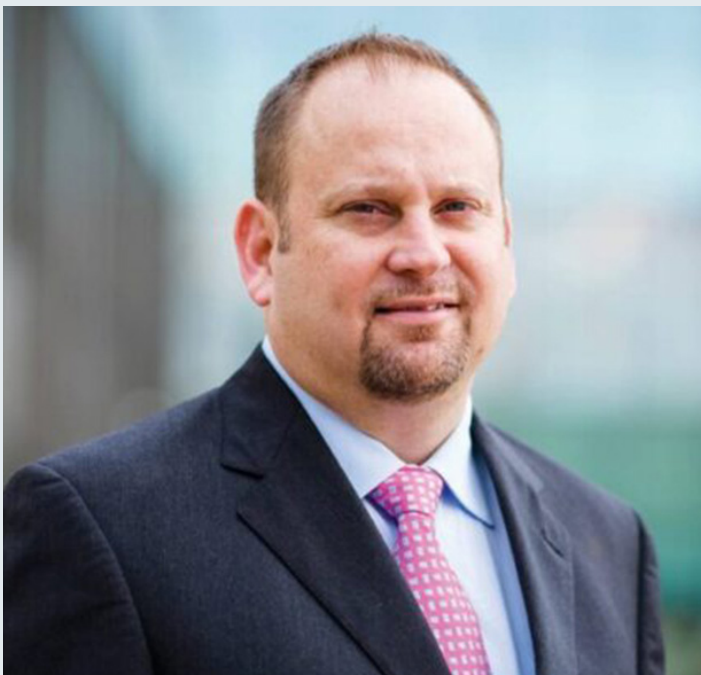
# Announcements

## CEAT Scholars make and donate masks



# Academics

## FPSET alumnus accepts appointment to World Trade Center Health Program of the CDC



## Professor Suzanne Bilbeisi recognized by the Oklahoma AIA



# Academics

## First virtual Fire Rescue International Research Symposium a great success!

The International Association of Fire Chiefs (IAFC) and Oklahoma State University (OSU) invited researchers to submit abstracts for the third Fire-Rescue International (FRI) Research Symposium, which was scheduled to take place in August 2020. Due to the COVID-19 pandemic, a decision was made to host the symposium virtually, which took place on October 19, 2020.

The goal of the annual Symposium is to present research in a format that leaders can apply at the local level to improve fire and emergency service practice. The special emphasis of this year's symposium was on fire and emergency responses related to COVID-19. A broad range of research topics were also considered, although presentations focusing on lessons learned from the COVID-19 response and how real-time research was put into action were given priority.

Fourteen video presentations, many of which were COVID-19 related, were streamed with over 460 attendees with an average of 250 attendees per speaker. The challenge of switching to a virtual platform resulted in providing many more participants the opportunity to attend the research symposium. In addition to the higher than normal attendance, students and faculty from Oklahoma State University had a record number of six research presentations that were accepted, which included the following:

- Brian Brush, Master's student in the Fire and Emergency Management Program (FEMP) and the Training Chief at Midwest City Fire Department
- Chris Pfaff, Master's student in the Fire and Emergency Management Program (FEMP) and the Lead Instructor with West Pierce Fire & Rescue
- David Huntsman, PhD student in the Fire and Emergency Management Program (FEMP)
- Rawan Tawalbeh, PhD student in the Fire and Emergency Management Program (FEMP)
- Tony McAleavy, assistant professor from the Fire and Emergency Management Program (FEMP)

The videos of each presentation with some of the research posters are available at the following links:



### Mountains of Data; A Pile of Ashes

#### Brian Brush

[Video](#)

Brian Brush, a 20+ year veteran of the fire service, is a Training Chief at Midwest City (OK) Fire Department. He has a bachelor's degree in fire and emergency services administration, Chief Training Officer designation from CPSE and his EFO. He instructs on a national level and writes for Fire Engineering.



### Adaptive Performance in the Fire Service: The Effects of Empowerment at Multiple Leadership Levels

#### David Huntsman

[Video 1](#) [Video 2](#)

David Huntsman is a doctoral student in the College of Engineering, Architecture, and Technology, Fire and Emergency Management Program at Oklahoma State University. His research focuses primarily in the areas of organizational behavior and human resource management in first response organizations.



### Preliminary Analysis of Accumulation of Carcinogenic Contaminants in Retired Turnout Gear.

#### Jake Mitchell

[Video](#)

Jake Mitchell is a senior in Oklahoma State University's Fire Protection and Safety Engineering Technology (FPSET) program. Upon graduation in December of 2020, he will pursue a career in occupational safety.

# Academics

## First virtual Fire Rescue International Research Symposium a great success! (Continued)



### Respiratory protection for EMS during the COVID-19 pandemic.

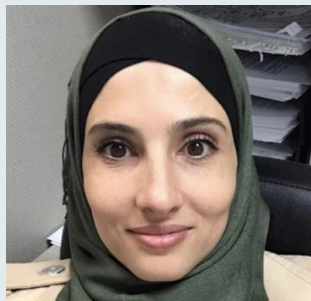
#### Christopher Pfaff

Video

Chris Pfaff is a firefighter/engineer with West Pierce Fire & Rescue. He is the Hazmat team lead for their organization of 150 firefighters, with 16 of them being Hazmat Technicians. He is also one of the premier hazmat instructors in the Northwest and has instructed at multiple fire agencies, colleges, and Washington state-level organizations. He is also a Hazmat instructor and Branch Manager on FEMA Task Force 1.

Chris is expected to graduate from Oklahoma State University with a graduate degree in the Fire & Emergency Management program in December of 2020.

He also has official train-the-trainer status in Hazmat Awareness, Operations, Technician, and Incident Command Officer, and has instructed multiple Hazmat and Fire Dynamics classes across Washington state for the past decade and has consulted local and state authorities across the nation in the creation and maintenance of hazmat programs.



### Role Conflict Among EMS Providers and Their Willingness to Report to Duty During Disasters

#### Rawan Tawalbeh

Video

Rawan Tawalbeh, MS-EHS, is a PhD candidate in Fire and Emergency Management Administration program at Oklahoma State University, College of Engineering Architecture & Technology.

Mrs. Tawalbeh received her master's degree in Emergency Health Services from University of Maryland, Baltimore County. She has extensive experience in both academic and clinical roles in paramedicine at Jordan University of Science and Technology. Currently, she is working on her Ph.D. dissertation research that aims to explore the role conflict among EMS personnel and their willingness to report to duty during disasters with a focus on COVID-19.



### Cognizance of Disaster Scale and Complexity: A Visual Metaphor Approach

#### Dr. Tony McAleavy

Video

Tony McAleavy PhD, MSc, BA (Hons) teaches on the Fire & Emergency Management Program - FEMP - at Oklahoma State University. He has taught in the United States of America, the United Kingdom, the United Arab Emirates and Turkey. His teaching & research spans mitigation, preparedness, response and recovery with an emphasis on command and control and interoperability. Dr. McAleavy holds BA (Hons) Business Administration and MSc Disaster Management and Sustainable Development degrees from Northumbria University in the United Kingdom.

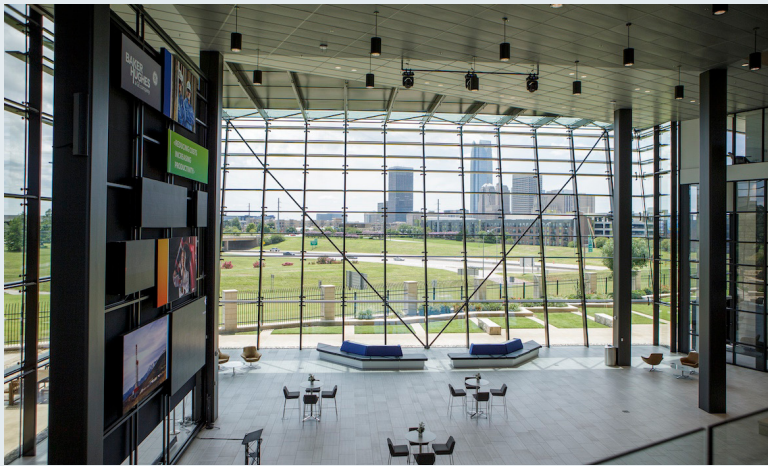
As well as a PhD in Disaster Management from the University of South Wales in the United Kingdom. He also holds a Certificate of Achievement for Contributions to Emergency Management from the Federal Emergency Management Agency.

Before his transition into academia, Dr. McAleavy spent 10 years in emergency management in the United Kingdom. He is a former Ambulance Service and H.M. Coastguard officer. He also spent four years in local government rising to the position of Civil Contingencies Manager in one of the largest local governments in the United Kingdom. His experience includes operational, tactical and strategic emergency & continuity management across a broad range of incidents. This includes pre-hospital medical emergencies, maritime search and rescue, industrial and HAZMAT/CBRNe incidents and natural hazards.

Dr. McAleavy has received citations from a number of agencies, most notably from the Ambulance Service for assisting a 999-caller in successfully performing infant CPR and from H.M. Coastguard for stabilizing a heart-attack patient via radio-telephony and coordinating their heliborne recovery from a small leisure craft.

# Academics

## Engineering students get first tour of OSU DISCOVERY building donated by Baker Hughes



## OSU alumna honored for work in science and technology



## CEAT PEATEs prepared for supporting CEAT freshman students living in Parker Hall LLP



The CEAT Parker Engineering, Architecture and Technology Experts (PEATEs) play an integral part in the CEAT Parker Hall Living Learning Program (LLP) as academic mentors. The impact that the PEATEs have in Parker Hall is especially important under the current COVID-19 pandemic conditions. The PEATEs, who live on the same floors as their mentees, provide essential support to the freshman engineering students living in the residence hall. To better prepare the upperclassmen for the role that they provide to the engineering students, CEAT Student Services and CEAT-In Residence (CEAT-IR) coordinated the PEATE training using the SPW classroom, which has been fitted with plexiglass barriers and physical distancing measures. There were 10 presentations held over two days (August 13 and 14) covering topics pertaining to the role of a mentor including leadership, student wellbeing, and most importantly diversity and inclusion and

the OSU COVID-19 safety guidelines. Fifteen PEATEs attended in-person with two students joining via Zoom. This training session also afforded the PEATEs an introduction to the Residential Community Educator, Assistant Residential Community Educator, and Community Mentors, all who serve a vital role in the community created at Parker Hall.

The week after the PEATE training, the CEAT freshman students living at Parker Hall residence also had the opportunity to meet their PEATEs and the CEAT-IR during welcome week. There were 14 small group interactions with social distancing held on the Scott-Parker lawn over the course of the week. These outdoor get-togethers also provided students with the opportunity to ask questions and receive information on virtual programming and mentoring options available to them at Parker Hall. Approximately 100 students got involved.

In an effort to strengthen and support the efforts of those that serve as role models and engage with freshmen within the Parker Hall LLP, a team-building day was organized. On September 19, 10 PEATEs and the CEAT-IR participated in the OSU Challenge Course. There were various team-building exercises and games that took place during the first half of the day, followed by the aerial obstacle course in the afternoon. The series of activities highlighted the importance of communication and working as a team. The PEATEs had the opportunity to creatively work through a variety of strategies that would support their efforts in engaging their mentees in creative ways. Some of the main highlights of the challenge course were the zipline and the leap of faith. Participants had to ascend to the top of a utility pole, find their balance and courageously leap off and grab hold of a hanging trapeze. The leap of faith required them to put complete trust in their belay team on the ground if they hoped to reach their target. It was an adventurous and exciting experience, building on the strengths of our academic mentors in the Parker Hall LLP.

# Research

## Oklahoma aerospace industry faces new challenges and opportunities



Director Jamey Jacob discusses the Oklahoma aerospace industry with OETA. Segment begins at 28:00.

## OSU Micro-G Next Tests at NASA Neutral Buoyancy Lab



## Oklahoma's burgeoning UAV ecosystem

