



UCF

UNIVERSITY OF CENTRAL FLORIDA | ORLANDO

College of Engineering and Computer Science  
**FACULTY RESEARCH TALKS**

LISTEN. LEARN. COLLABORATE.

Zoom talk | Friday, Oct. 23, 2020 | Noon to 1 p.m.



PRESENTER 1:

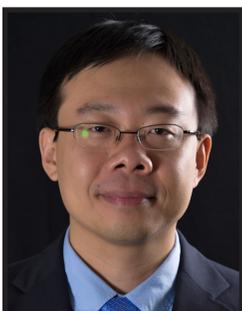
**ALBERT MANERO**

Executive Director,  
Limbitless Solutions,  
Courtesy Research  
Associate MAE,  
Bioniix Cluster

**Development and Assessment of Multi-Gesture Pediatric Bionic Limbs**

In this presentation, Dr. Manero will introduce his research related to developing the next generation of pediatric electromyographic prosthetics and their clinical translation. Advanced gesture control for pediatric patients is made possible leveraging multiple control schemes and gamified training. The design platform has been in clinical evaluation since 2019 as part of a national clinical trial assessing user functionality and quality-of-life outcomes.

Dr. Manero's area of focus is in translational research, from multidisciplinary design to clinical trial assessment. The laboratory is also focused on developing undergraduate research students through project-based learning. He completed his Ph.D. in mechanical engineering at UCF and has been awarded with honors including the Christine Mirzayan Science & Technology Policy Graduate Fellowship with the National Academy of Engineering and a Fulbright Student Research Fellowship hosted at the German Aerospace Center.



PRESENTER 2:

**DAZHONG WU**

Assistant Professor,  
Mechanical and  
Aerospace Engineering

**Design and Additive Manufacturing of Lightweight Materials**

In this talk, Dr. Wu will introduce design and additive manufacturing of lightweight and high-performance materials such as bioinspired lattice materials, continuous carbon fiber reinforced polymer composites and engineering ceramics. These 3D-printed materials have many applications in automotive, energy, sports equipment and healthcare industries. Compared to conventional manufacturing techniques, additive manufacturing can fabricate parts with complex geometries and tunable mechanical properties.

Dr. Wu's research is focused on additive manufacturing, data-driven smart manufacturing, prognostics and health monitoring. Prior to joining UCF, he was a senior research associate at Pennsylvania State University. He earned his Ph.D. in mechanical engineering at Georgia Institute of Technology. He won the Best Paper Award from the *Journal of Manufacturing Systems* and the Most Accessed Paper Award of *Journal of Manufacturing Science and Engineering* in 2019.

ZOOM LINK: <https://bit.ly/35unuVe> | QUESTIONS? Email [Jennifer.Sutton@ucf.edu](mailto:Jennifer.Sutton@ucf.edu)

For more information, and to see previous talks, visit [www.cecs.ucf.edu/faculty-research-talks](http://www.cecs.ucf.edu/faculty-research-talks)

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PRESENTER 3:  
**NECATI CATBAS**

Lockheed Martin St.  
Laurent Professor,  
Civil, Environmental  
and Construction  
Engineering,  
Founding Director,  
Civil Infrastructure  
Technologies for  
Resilience and Safety

**Development and Implementation of Structural Health Monitoring (SHM) and Non-Destructive Evaluation (NDE) Technologies for Civil Infrastructure Systems**

Civil infrastructure systems include a nation's critical assets, such as highway and long-span bridges, buildings, energy transmission and generation structures, wind turbines and pipeline systems. Next-generation infrastructure systems require the use of novel technologies, methodologies and indicators to track behavior, assess condition and predict future performance for informed decision making. This talk will share recent work on sensing, monitoring, non-destructive evaluation, modeling, data analysis and decision-making using a variety of SHM, NDE and St-Id methods and technologies, case studies and real-life examples.

Dr. Catbas' research interests span theoretical, experimental and applied aspects of structural identification, structural health monitoring, non-destructive evaluation, and assessment of structural systems and earthquake engineering with applications on bridges, buildings, aerospace structures and components, and stadiums. He is on the editorial board of several top-level journals, served on the executive board of the Society for Experimental Mechanics and was chair of the ASCE Structural Identification Technical Committee. Dr. Catbas has received several awards and honors, including the Aftab Mufti Medal from the International Society for Structural Health Monitoring of Intelligent Infrastructure.



PRESENTER 4:  
**SHIBU YOOSEPH**

Professor,  
Computer Science,  
Lead, Genomics and  
Bioinformatics Cluster

**Unraveling Microbial Diversity and Function Using Large Scale 'omics' Approaches**

Cultivation-independent approaches combined with DNA sequencing technologies have proven to be valuable tools in characterizing the incredible microbial diversity that exists in nature. These approaches allow for assaying the genomic and transcriptomic contents of the constituent microbes in an ecosystem. They have been used to understand various aspects of microbial ecosystems, including community structure, biogeographical distributions, microbe-environment interactions, microbe-host associations and protein family diversity. The nature and volume of data generated by these technologies pose computational challenges that require the development of efficient algorithms to effectively analyze these data.

Dr. Yooseph joined UCF in 2016. His main research area is computational biology and bioinformatics, with a focus on the design and development of efficient algorithms for large-scale biological data analysis. Dr. Yooseph's research involves collaborations and applications in the fields of computing, microbiology, environmental science and biomedical science. His current focus is on the development of novel computational approaches to elucidate mechanisms of microbial interactions with their environment and host in the context of human diseases.

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