

Safety assurance with AI in-the-loop

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Abstract: Planning under constraints and uncertainty is a challenging open problem. In this talk I will describe our recent work on uncertainty quantification of learning-enabled systems using conformal prediction, and its interconnection with safety-critical controllers for aerospace applications such as VTOL control.

Bio: Dimitra Panagou received the Diploma and PhD degrees in Mechanical Engineering from the National Technical University of Athens, Greece, in 2006 and 2012, respectively. She is currently an Associate Professor in the Department of Robotics, with a courtesy appointment in the Department of Aerospace Engineering at the University of Michigan. Earlier, she was a post-doctoral research associate with the Coordinated Science Laboratory, University of Illinois, Urbana-Champaign (2012-2014), a visiting research scholar with the GRASP Lab, University of Pennsylvania (June 2013, Fall 2010), and a visiting research scholar with the University of Delaware, Mechanical Engineering Department (Spring 2009). Her research program spans nonlinear systems and control; multi-agent systems, autonomy, and control; and aerospace robotics, with applications in robot/sensor networks and multi-vehicle systems (ground, marine, aerial, space) under uncertainty. She is a recipient of the NASA Early Career Faculty Award, the AFOSR Young Investigator Award, the NSF CAREER Award, the George J. Huebner, Jr. Research Excellence Award, and a Senior Member of the IEEE and the AIAA.