UNIVERSITY of WISCONSIN
LA CROSSE
Distinguished Lecture Series
IN COMPUTER SCIENCE
Monday, October 20

VIJAY KUMAR

is the UPS Foundation Professor in the School of Engineering and Applied Science at the University of Pennsylvania. He received his Bachelors of Technology from the Indian Institute of Technology, Kanpur and his Ph.D. from The Ohio State University in 1987. He has been on the Faculty in the Department of Mechanical Engineering and Applied Mechanics with a secondary appointment in the Department of Computer and Information Science at the University of Pennsylvania since 1987. He was the the assistant director for robotics and cyber physical systems at the White House Office of Science and Technology Policy from 2012-14.

Kumar served as the Deputy Dean for Research in the School of Engineering and Applied Science from 2000-04. He directed the GRASP Laboratory, a multidisciplinary robotics and perception laboratory, from 1998-04. He was the Chairman of the Department of Mechanical Engineering and Applied Mechanics from 2005-08 and the Deputy Dean for Education in the School of Engineering and Applied Science from 2008-12.

Kumar is a Fellow of the American Society of Mechanical Engineers (2003), a Fellow of the Institution of Electrical and Electronic Engineers (2005) and a member of the National Academy of Engineering (2013).

Kumar's research interests are in robotics, specifically multi-robot systems, and micro aerial vehicles. He has served on the editorial boards of the IEEE Transactions on Robotics and Automation, IEEE Transactions on Automation Science and Engineering, ASME Journal of Mechanical Design, the ASME Journal of Mechanisms and Robotics and the Springer Tract in Advanced Robotics (STAR). He is the recipient of the 1991 National Science Foundation Presidential Young Investigator award, the 1996 Lindback Award for Distinguished Teaching (University of Pennsylvania), the 1997 Freudenstein Award for significant accomplishments in mechanisms and robotics, the 2012 ASME Mechanisms and Robotics Award, the 2012 IEEE Robotics and Automation Society Distinguished Service Award and a 2012 World Technology Network Award. He has won best paper awards at DARS 2002, ICRA 2004, ICRA 2011, RSS 2011, and RSS 2013, and has advised doctoral students who have won Best Student Paper Awards at ICRA 2008, RSS 2009, and DARS 2010.

SCHEDULE OF EVENTS

10:30 a.m. Registration | Cleary Alumni & Friends Center | UW-L Campus

11 a.m. KEYNOTE

From UAVs to Flying Robots

The last decade has seen a growing interest in drones and a proliferation of UAVs, especially in the US. This talk will address the challenges and opportunities for developing smart aerial robots with applications in search and rescue, first response and precision forming. I will describe our work in designing small, agile robots, how to control and plan autonomous motions, and finally, our approach to localization in environments without GPS.

4:30 p.m. Registration | Cleary Alumni & Friends Center | UW-L Campus

5 p.m. SYMPOSIUM

Aerial Robot Swarms

The falling price/performance ratio of sensors and processors and the democratization of manufacturing through such techniques as 3-D printing has made it possible to create inexpensive robots. Similarly the decrease in cost/performance of communication and storage now makes it possible to create swarms of aerial robots. I will address key algorithmic challenges in coordinating large teams of aerial robots with applications to cooperative manipulation and transport, and autonomous mapping of three-dimensional environments.

For further information about the lecture contact:

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