



# 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.

## LECTURE TOPICS

### 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.

### 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.

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LA CROSSE

# Distinguished Lecture Series in Computer Science

The University of Wisconsin-La Crosse Distinguished Lecture Series in Computer Science is funded by private gifts to the UW-La Crosse Foundation Inc. and through support from the Department of Computer Science and the College of Science and Health. The purpose of the series is to bring to La Crosse each year a computer scientist whose significant accomplishments and communication skills can inspire and enrich the careers of students and faculty and the computer community in general.

The Computer Science Department at UW-La Crosse is the second oldest in the state, behind Madison. Our program was founded in 1968. The department was created as the result of efforts by Jack Storlie, a chemistry professor at the time, who could see that computing would have broad applications in many fields. It has always been a goal of the department to provide students with a strong foundation in software development and the broadest possible opportunity to study the range of sub-disciplines in computer science. The department believes that this maximizes the employment opportunities for our students and well prepares them for a career of innovation in a rapidly evolving discipline.

Currently the department consists of 11 faculty. It offers a B.S. in computer science, Master of Software Engineering (MSE), dual degree 5yr B.S./MSE degree track and an emphasis in Computer Engineering Technology in collaboration with Western Technical College. The department faculty and students are active in research, regularly publish in peer-review journals and give presentations at conferences. It also sponsors a student chapter of the Association for Computing Machinery (ACM), a recently organized Women in Computer Science (WiCS) group and a chapter of the honorary computer science society, Upsilon Pi Epsilon.

For more information about the UW-L computer science department, visit our website at [www.cs.uwlax.edu](http://www.cs.uwlax.edu).

# Distinguished Lecture Series in Computer Science

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## Reservations are due Oct. 16, 2014

Detach this card and send registration to:

UW-L Foundation

Cleary Alumni & Friends Center

615 East Ave. N.

La Crosse, WI 54601

608.785.8153

Fax: 608.785.6868

email: [jkotek@uwlax.edu](mailto:jkotek@uwlax.edu)

# Monday, Oct. 20, 2014

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

**11 a.m. KEYNOTE**  
**From UAVs to Flying  
Robots**

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

**5 p.m. SYMPOSIUM**  
**Aerial Robot Swarms**

All events are open to the public.

### PARKING OPTIONS:

- Visitors can purchase a half (\$3) or full day (\$5) permit from Parking Services, located at 605 17th St. North, in the parking ramp and across from the Cleary Center.
- Visitor parking is available at pay stations located in the Cleary Center lot (C-12) and the first level of the parking ramp.
- Permits may be purchased online at <https://uwlax.clickandpark.com/facility>.

### For further information contact:

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## Monday, Oct. 20, 2014

UW-La Crosse Campus



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Co-sponsored by the

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