**3rd October 2012**

**Temporary Room: EM1.83 from 15.15 – 16.00**

**Progress towards autonomous robotics: an overview**

**Prof. Wyatt Newman**

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***Abstract:*** *This presentation reviews critical aspects of autonomous robotics drawn from research in Prof. Newman’s lab at CWRU. Like a biological creature, successful autonomous robots need to interpret and interact effectively with their environments. Requirements span: energic interactions (including mechanical assembly, manipulation of control devices, and use of power tools); learning interaction skills from demonstrations and from experience; mapping and interpreting environments; planning and replanning movements; moving through mapped and unmapped environments, including avoiding hazards and collisions with other dynamic entities; and responding appropriately to supervisory-level commands from humans. Examples will be shown from manufacturing, autonomous vehicles, smart wheelchairs, tourguide robotics, and surgical robots.*

**Biography:** Wyatt Newman is a professor in the department of Electrical Engineering and Computer Science at Case Western Reserve University. His research is in the areas of mechatronics, robotics and computational intelligence, in which he has 12 patents and over 125 technical publications. He received the S.B. degree from Harvard College in Engineering Science, the S.M. degree in Mechanical Engineering from M.I.T. in thermal and fluid sciences, the M.S.E.E. degree from Columbia University in control theory and network theory, and the Ph.D. degree in Mechanical Engineering from M.I.T. in design and control. Dr. Newman spent 8 years in industrial research at Philips Laboratories, Briarcliff Manor, NY, engaged in electromechanical design and control. He joined Case in 1988, and in 1992 he was named an NSF Young Investigator in robotics, and subsequently was named a Herbold Fellow, a Tau Beta Pi “distinguished engineer”, a Woody-Flowers FIRST-robotics mentor awardee, and a CWRU awardee for teaching and for leadership. In 2007, he led “Team Case” in the DARPA Urban Challenge, involving autonomous vehicles operating among live and robotic traffic.

[](http://engineering.case.edu/profiles/wsn)

Prof. Newman, a registered professional engineer and a senior member of IEEE, also has held adjunct appointments at the Cleveland Clinic and the Cleveland V.A. Medical Center; was a visiting scientist at Philips Natuurkundig Laboratorium, Eindhoven, The Netherlands; visiting faculty at Sandia National Laboratories, Intelligent Systems and Robotics Center, Albuquerque, NM; a NASA summer faculty fellow at NASA Glenn Research Center; a visiting fellow in neuroscience at Princeton University; and is currently a distinguished visiting fellow at Edinburgh University.