



ASME/ISA LI Sections Technical Meeting and Seminar

Robotics in Automation

Frank Langro, Festo Corporation
Tom Worsnopp, Festo Corporation
Kevin Craig, Ph.D., Hofstra University

Wednesday, March 11, 2015

Hofstra University
Adams Hall Room 208
Hempstead, New York 11549

6:00 PM Sign-In and Refreshments
6:30-8:30 PM Presentation

- Cost:** Attendance is free of charge for all attendees, and includes light refreshments. There is, however, a cost if you wish to obtain PDH credits. See next.
- PDH Credits:** ASME has approved this seminar for two Professional Development Hour (PDH) credits. ASME will issue a two-credit certificate to attendees who pay a processing fee of \$35. Please let us know when you register that you wish to receive the PDH credits and bring a check, made out to ASME Long Island Section, to the seminar.
- Registration:** Please register by contacting Tony Cacioppo at tonycaci@aol.com. Please provide your name, daytime phone number, company and society affiliation, and whether you are applying for PDH credits.
- Map/Directions:** https://www.hofstra.edu/pdf/about/infocenter/infocenter_print_campusmap.pdf

Program Description – The use of robotics is a trend in all areas of manufacturing that has increased over the years and will undoubtedly continue. In this program we will look at some of the technologies that are being used in the development of the next generation of robots and how a company like Festo has used the study of nature (biomimicry) to fuel these ideas. We will also look at current state of the art robotic solutions used today in manufacturing and experience live demonstrations of several of these robotic solutions. The evening will end with a tour of Hofstra University's newly created Robotics and Advanced Manufacturing Laboratory, which will provide students with the skills to design and work with the robotic systems of today and the future.

About the Speakers – Frank Langro is currently the Director of Marketing & Product Management at Festo. Frank has represented Festo in multiple areas in support of the advancement of fluid power. He has participated in the development of national and global standards as a member of the National Fluid Power Association. He has represented Festo as an Industrial Advisory Board member for the CCEFP (Center for Compact and Efficient Fluid Power), a partnership between industry and several leading universities to steer the direction of fluid power research. Frank also holds four patents in the area of fluid power. Frank attained a BS degree in mechanical engineering from Hofstra University.

Tom Worsnopp is Product Manager for PLCs and Servo Pneumatics at Festo. In his role, he provides technical training and sales training on electric automation products including electromechanical actuators, motors, drives, PLCs, motion controllers, and servo pneumatics. Tom has an MS degree in controls and a BS degree in mechanical engineering, both from Northwestern University. When he began college, his interest was in mechanical design and he particularly enjoyed CAD modeling. Later on, exposure to robotics inspired him to study electrical design and computer programming. Tom was published in the "Journal of Dynamic Systems, Measurement, and Control" in March, 2006 for his research into controlling the apparent inertia of human-interactive robots.

Kevin Craig graduated from Xavier, a Jesuit HS in NYC, NY. He attended the United States Military Academy at West Point, NY, played 1st-team varsity football and baseball, and graduated with a B.S. degree and a commission as an officer in the U.S. Army. After honing his leadership and administrative skills serving in the military, he attended Columbia University and received the M.S., M.Phil., and Ph.D. degrees. While in graduate school, he worked in the mechanical-nuclear design department of Ebasco Services, Inc., a major engineering firm in NYC, and taught and received tenure at both the U.S. Merchant Marine Academy and Hofstra University. While at Hofstra, he worked as a research engineer at the U.S. Army Armament Research, Development, and Engineering Center (ARDEC) Automation and Robotics Laboratory. He received the 1987 ASEE New Engineering Educator Excellence Award, a national honor. In 1989, he joined the faculty at Rensselaer Polytechnic Institute (RPI). At RPI, he further developed his leadership and administrative skills as Director of Core Engineering, the first two years of the School of Engineering, and as Chair of the Engineering Science Interdisciplinary Department. As a tenured full professor of mechanical engineering, he taught and performed research in the areas of mechatronic system design and the modeling, analysis, and control of multidisciplinary engineering systems. With significant continuous funding from both industry and government, he developed the Mechatronics Program at RPI, which included an extensive teaching and research laboratory and several undergraduate and graduate courses in mechatronics. He collaborated extensively with the Xerox Mechanical Engineering Sciences Laboratory (MESL), an offshoot of Xerox PARC, during this time. During his 18 years at RPI, he graduated 37 M.S. students and 20 Ph.D. students. He is the author of over 30 refereed journal articles and over 50 refereed conference papers. Emphasis in all his teaching and research is on human-centered, model-based design, with a balance between theory and best industry practice. At RPI, he received the two highest awards conferred for teaching: the 2006 School of Engineering Education Excellence Award and the 2006 Trustees' Outstanding Teacher Award.

From 2007 to 2014, he wrote a monthly column on mechatronics for practicing engineers in Design News magazine. Over the past 20 years, he has conducted hands-on, integrated, customized, mechatronics workshops for practicing engineers nationally and internationally, e.g., at Xerox, Procter & Gamble, Rockwell Automation, Johnson Controls, Brady Corp., Pitney Bowes, and Siemens Health Care in the U.S., and at Fiat and Tetra Pak in Italy. He is a Fellow of the ASME and a member of the IEEE and the ASEE.

After a national search, in January 2008, he was chosen to be the Robert C. Greenheck Chair in Engineering Design, a \$5 million endowed chair, at Marquette University. His mission was to integrate multidisciplinary design and discovery learning throughout the entire college, in all years and in all departments. He transformed students, faculty, curricula, and facilities throughout the college and created a new engineering education mindset and culture for innovation. He was given the 2013 ASEE North-Midwest Best Teacher Award and the 2014 ASME Outstanding Design Educator Award, a society award.

In the fall of 2014, he returned to the Hofstra University School of Engineering and Applied Science as a tenured full professor of mechanical engineering. He is the Director of the Robotics and Advanced Manufacturing Laboratory, which he created with \$1M funding from NYS / Hofstra, and also the Director of the Center for Innovation, a new center created to collaborate with business and industry to foster innovation.