NYU Mechatronics Education Workshop Has Global Impact on Academic Community

Dr. Tom Lee, Chief Business Development Officer, Quanser

Mechatronics has emerged as one of the most important trends in modern engineering and is the heartbeat of established fields such as robotics and of emerging fields including the IoT, Industrial IoT, Cyberphysical Systems, and Industry 4.0. Accordingly, academic institutions are responding with a rapidly increasing number of new mechatronics programs at the undergraduate and graduate level.

In June 2016, New York University's Tandon School of Engineering convened an exploratory workshop to identify opportunities and challenges facing mechatronics program development. Quanser was the principal industry sponsor. Subsequently, in November 2016, NYU hosted an enlarged workshop, this time, co-sponsored by the US National Science Foundation and Quanser. More than seventy attendees participated in the event representing leading universities and two- and four-year colleges from all over the United States, Canada, UK, and Denmark. The workshop set goals to engage key stakeholders in industry and academia in productive discussions of the emerging opportunities and challenges for mechatronics as an academic discipline and to draw their respective priorities and best practices to shape the future of this multidisciplinary field.

Dr. Vikram Kapila from NYU Tandon and I facilitated the exchanges that included input from industry and several progressive international academic institutions that have successfully launched mechatronics programs. They offered an inside view of the concepts, tools, and practices mechatronics programs need to best prepare students for industry. "We had organized this event to get a community perspective on the importance of mechatronics as a stand-alone academic discipline. We believe that mechatronics as a field has grown sufficiently mature, that instead of simply offering individual courses or a sequence of courses, we are now at a stage to create entire academic programs," said Dr. Kapila.

Participating faculty discussed the skills engineering graduates need, how best to balance the theory and applied work, the development of new mechatronics courses, and how they relate to traditional courses. The group also worked to reconcile the respective visions into pragmatic, effective roadmaps for post-secondary institutions. "It is up to us as a community to come to events like this, share good practices, and bring these practices back home to enhance what we offer to our students," said Dr. George Panoutsos from the University of Sheffield in the UK.

The event has also served as a catalyst for organizing additional mechatronics workshops throughout 2017. Quanser will continue to serve as principal industry sponsor to ensure continuity in this important global discussion. The first in the series will take place at the American University of Sharjah (UAE) on April 28, in Austin, Texas on May 23 and at the Technical University of Denmark on June 20-21. Additional workshops will be held in Mexico, USA and Malaysia later this year. Several of these workshops will also be sponsored by industry partners National Instruments and Dassault Systèmes.

As the event agenda concluded at NYU, many educators were inspired to continue the discussion prompting the development of an online community for mechatronics educators around the world. Quanser was happy to support the creation of **www.mechatronicseducation.org** which recently launched in early March and is moderated by Dr. Nima Lotfi from Southern Illinois University Edwardsville, USA. The website serves to promote activities in the mechatronics academic community and hosts a forum to discuss experiences and challenges of building mechatronics programs, courses, and labs. It also allows members to ask questions, highlight success stories, and access the repository of shared curricula, lab projects, and other materials. New members are welcome to join and participate in the discussions.