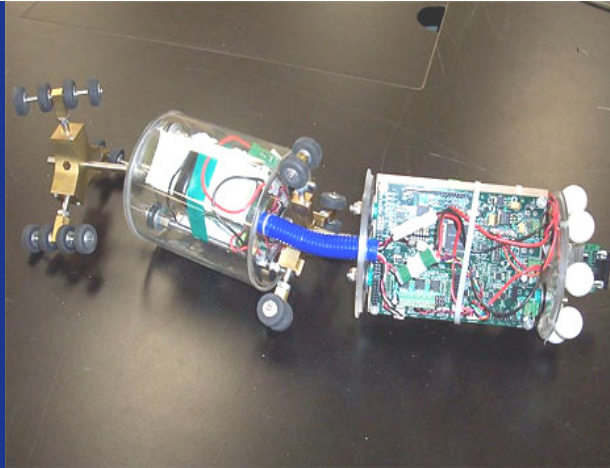


***Design and
Development of
Opto-mechatronic
Systems – A Case
Study of Robotic
Inspection of Pipes***



SF STATE

***Dr. Mehran
Mehrandezh***

Assoc. Professor
University of Regina



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Synopsis:

Mehrandezh research revolves around robotics, vision, and control. The synergetic connection between these in design of mechatronic systems has been the main focus of the work done by him for the past decade. Incorporating machine vision in the design of mechatronic systems, in particular, will bring them to a quantum leap in terms of reliability, resolution, accuracy, and redundancy thanks to the recent developments in digital imaging and the offered computing power of the current processors. However, the complexity of the current algorithms used in image processing, feature detection, pattern recognition/classification, mapping and vision-based control of mobile systems make their utilization in some real-world applications a big challenge. Design and development of a pipe crawling robot for automated vision-based inspection/quality control of pipes in real time using an optical laser scanning device will be explained in detail.

Speaker Bio:

Mehran Mehrandezh is currently an associate professor in the Faculty of Engineering and Applied Science at the University of Regina. He spent 2 years at the Simon Fraser University in British Columbia, Canada from 1999 to 2001 before joining the University of Regina. He received his Ph.D. degree in mechanical engineering from University of Toronto in 1999 and his M.A.Sc. degree in mechanical engineering from Queens University in Kingston, Canada in 1995. Dr. Mehrandezh research work revolves around the robotics, vision, and control. The pipe crawling robot co-invented by him was highlighted in the Popular Mechanics magazine in 2009 as one of the five high-tech fixes to infrastructure. He has been a member of the Institute of Electrical and Electronics Engineers (IEEE) since 1995.

For inquiries, please contact Dr. Kwok Siong Teh at ksteh@sfsu.edu