



Recent Development of Mobile Robots in Farming and Vibration Control

Presenter: Dr. Reza Fotouhi

Professor of Mechanical Engineering Department
at the University of Saskatchewan in Canada

Date & Location:

**Wednesday 1395/08/12, 14-15:30 pm, Mechanical Engineering Amphitheater,
Iran University of Science and Technology**

Considering the current needs of the world population to increase the rate of crop production, there is a strong needs for research on screening crops by use of technology for high-throughput phenotyping (HTP). Objective of our research is to develop a field-based HTP mobile platform for rapid assessment of multiple quantitative plant traits to be use in crop breeding nurseries in Saskatchewan. A literature review of the devices exist for plant phenotyping, and state of research in developing autonomous mobile robots for plant phenotyping will be discussed. Also, other developments in vibration control of manipulators will be discussed.

About the Speaker:

Dr. Reza Fotouhi obtained his PhD in Mechanical Engineering from the University of Saskatchewan in Canada. He is currently a Professor in the Mechanical Engineering Department at the University of Saskatchewan in Canada. His research interests include Robotics (dynamics & control), Structural Dynamics and Vibrations, Computational Mechanics, and Biomechanics. His research program consists of both computer simulations and physical experiments. He has established robotics lab at the University of Saskatchewan. A few of his recent research projects are:

- Development of an autonomous mobile robot for plant phenotyping
- Point-to-point and path following navigation of mobile robot in farm settings
- Novel design of a precision planter for a robotic assistant farmer
- Design and control of a rehab robot
- Development of a remote ultrasound imaging system
- Kinematics and path planning of a six degree of freedom robot manipulator (mobile manipulators)
- Dynamics and vibration control of flexible (links & joints) robot manipulators.
- Experimental study of a trajectory/temporal planning algorithm of a wheeled mobile robot
- Fatigue strength of hollow section square-tube (HSS) T-joints
- Design of a hydraulic flexible joint robot simulator
- Large vibration analysis of very flexible beams using finite element method

