Title: Precise Robot Control Under Various Load Conditions for Industry 4.0 Applications

Abstract: Recently, high-customization mass production has been the trend of manufacturing and automation lines in the development of Industry 4.0. Robots have been used to perform various kinds of automated missions, such as picking, placing, inspections, etc. Robots usually have good accuracy of repeatability but may not be accurate enough for absolute positioning. Therefore, engineers need to personally assign the robot motions instead of completely designing in computers. This research focuses on calibration of end effector absolute positioning under various load conditions. First, the errors of the end effector absolute positions were measured and modeled by the nonlinear Kriging method. The corrected control parameters for end effector absolute positioning under various load conditions could be estimated based on the established Kriging model. Experimental setup and the study of the results will be presented in this talk.

Assoc. Prof. Po Ting Lin

Achievements：

- Involved in 61 Projects

    - Being PI: 29 projects (total 20.6M NTD)

    - Being Co-PI or project member: 32 projects (total 160.8M NTD)

- Publications

    - 18 SCI journal papers (averaged IF = 1.35, total citation = 207)

    - 87 International conference papers (total citation = 69)

    - 6 Taiwan invention patents, 2 US invention patents

- Awards

    - 2018: NTUST Young Investigator Award

    - 2017: 4th Delta Advanced Automation Contest (Final winner, highest award)

    - 2016: From IP to IPO (FITI) Competition (Final winner, highest award)

    - 2016: Invention & New Product Exposition (INPEX) (Silver award)

    - 2016: Kansas City Grassroot Startup Competition (Final winner)

    - 2016: IEEE/ASME MESA Conference (Best Paper)