

Title: Advanced High-Performance Control for Precision Manufacturing

Abstract: Mechatronics and controls enable the creation of intelligent precision machines and cutting edge industrial innovations and technologies. I will present an overview of advanced mechatronics and control for a number of high-precision manufacturing. They include high-performance and unique capabilities in machining non-round holes by fast tool servos and active magnetic bearing spindles, laser beam scanning for directed energy manufacturing by fast steering mirrors, and precision trajectory generation by industrial robots.

Bio Sketch:

Dr. Tsao received B.S. in Engineering from National Taiwan University, and M.S. and Ph.D. in mechanical engineering from University of California Berkeley. He is currently a Professor in the Mechanical and Aerospace Engineering Department, University of California Los Angeles, where he was Department Chair and has been directing the *Mechatronics Control Research Lab* and *Advanced Mechatronics and Control Industrial Consortium*. Dr. Tsao's is a Fellow of American Society of Mechanical Engineers and currently serves as Co-Editor-in-Chief of IFAC Mechatronics Journal and Chair of IFAC Mechatronics Technical Committee. Recognitions of his research include ASME Journal of Dynamic Systems, Measurement, and Control Best Paper Award, American Automatic Control Council Hugo S. Shuck Best Paper Award, International Symposium on Flexible Automation Best Paper Award, International Federation of Automatic Control (IFAC) Mechatronic Systems Award, and ASME Henry M. Paynter Outstanding Investigator Award.



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