Haptically-Enabled Robotic based Simulators

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ABSTRACT

This presentation covers research topics in Intelligent Robotics, tele-operation and haptics. Through a series of case studies, it demonstrates integration of haptic (tactile sensing) technology into augmented and virtual reality (AR/VR) systems, to increase their fidelity and realism for simulation-based training applications. The concept of robot based motion simulators will highlight the advanced capabilities of an in-house developed Universal Motion Simulators (UMS) series. UMS as the next generation of vehicle simulation, features a far greater range of motion, greater flexibility and more realism. It has proved to be a reliable, safe and cost-effective simulator that can realistically emulate the driving, riding and flying experience of a range of land, air, sea and space vehicles.

About the Speaker

Saeid Nahavandi received a Ph.D. from Durham University, U.K. in 1991. He is an Alfred Deakin Professor, Pro Vice-Chancellor, Chair of Engineering, and the Founding and current Director of the Institute for Intelligent Systems Research and Innovation at Deakin University. His research interests include modelling of complex systems, robotics and haptics. He has published over 1000 scientific papers in various international journals and conferences. Saeid was the recipient of the Researcher of the Year for Australian Space Awards 2021, Australian Defence Industry Awards - Winner of Innovator of the year, The Essington Lewis Awards, and Australian Engineering Excellence Awards - Professional Engineer of the Year.

Saeid has carried out industry-based research with several major international companies such as Airbus, Boeing, Bosch, Ford Motor Company, General Motors, General Dynamics, Holden, Lockheed Martin, Nissan, Thales and Vestas just to name a few.

Professor Nahavandi holds six patents, two of which have resulted in two very successful start-ups (Universal Motion Simulator Pty Ltd and FLAIM Systems Pty Ltd).

Professor Nahavandi is the Senior Associate Editor: IEEE Systems Journal, Associate Editor of IEEE Transactions on Cybernetics, IEEE Press Editorial Board member and Vice President: Human-Machine Systems, IEEE SMCS.

Professor Nahavandi is a Fellow of IEEE (FIEEE), Engineers Australia (FIEAust), the Institution of Engineering and Technology (FIET). Saeid is a Fellow of the Australian Academy of Technology and Engineering (ATSE). Saeid was the General Chair for IEEE SMC 2021.