DREXEL UNIVERSITY
College of
Engineering
Electrical and Computer Engineering

ECE Seminar Speaker: Dr. Wolf Kohn (CrowdPoint Technology)
Date & Time: Wednesday, October 6th, 2021 from 12PM-1:15PM ET
Location: Gerri LeBow building room 722
Title: Cooperative Distributed Inferencing (CDI): An Intelligent Control Agent Based Technology

Biography:
Wolf Kohn received the Ph.D. degree in electrical engineering and computer science from the Massachusetts Institute of Technology (MIT), Cambridge, MA, USA, in 1979. He co-founded Clearsight Systems, Inc., Bellevue, WA, USA, and Kohn–Nerode LLC, Dover, DE, USA. He has worked as Research Professor at the University of Washington, Seattle, WA, USA, in addition to being the Chief Scientist with Atigeo, LLC, Bellevue. He also taught at City University of New York Graduate Center, New York, NY, USA; Courant Institute of Mathematical Sciences, New York; New York University, New York; Rice University, Houston, TX, USA; Wayne State University, Detroit, MI, USA; and the University of California–Berkeley, Berkeley, CA, USA. He has published several refereed papers and book chapters, and has been a keynote speaker at several control conferences. Dr. Kohn was a recipient of the Engineer of the Year Award from Boeing, Seattle; Lockheed, Clearlake, TX; and NASA, Houston Space Center, TX, and the Teaching Award from MIT.

Abstract:
This presentation is concerned with an overview of a new approach to the design and implementation of distributed intelligent control in which the dynamic knowledge about the system dynamics, criterion and sensor information is mapped into a network of controllers, called Control Agents that collaborate to implement a desired behavior. Each of the agent's behavior is encoded in a specialized function called Constrained Data Hamiltonian. A Constrained Data Hamiltonian shares some of the properties with classic Hamiltonian functions in mechanics but it is especially formulated to operate in multiple domains of applications. This presentation will overview several application domains. In CDI, the network of agents is dynamically synchronized using a Mean Field approach based on a cooperative game strategy among the agents.

The presentation is organized as follows: 1- basic overview of CDI formulation including some of its formal aspects 2- CDI implementation architecture 3-Selected applications overviews:

Microgrid Control and Management (TECO), Intelligent Inventory and assortment planning (Microsoft Dynamics), Intelligent Block Chain Dynamic Concurrency (CrowdPoint Technology). A fourth application overview, Manufacturing of Nano Semiconductor Circuits, will be included if time permits. The presentation will conclude with a list of research and development issues in CDI and applications.