

COLLEGE OF ENGINEERING

Control Seminar



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On the Geometry of Optimal Mass Transport, Where Probability, Control, and Physics Meet



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October 2, 2020 3:30 - 4:30 pm
Event will take place via Zoom

ABSTRACT: Optimal Mass Transport (OMT) was born more than two centuries ago (Gaspar Monge, 1781) in the quest for the most economical transference of resources between producers and consumers. Besides providing the context for the development of duality theory and of linear programming (Leonid Kantorovich 1940's, Nobel Prize 1975), OMT has opened up important new chapters in Probability Theory and the Physical Sciences. In this talk, after a brief overview of OMT, we will explain the relevance of the theory in quantifying energy dissipation. Specifically, we will focus on bounding the power that can be drawn from stochastic models of thermodynamic engines that operate between heat baths of unequal or possibly varying temperature, and derive physically meaningful expressions for the dissipation cost of cycling over a finite time window.

The talk is based on joint works with Rui Fu (UCI), Amir Taghvaei (UCI) and Yongxin Chen (GaTech). Research funding by NSF and AFOSR is gratefully acknowledged.

BIO: Tryphon T. Georgiou was educated at the National Technical University of Athens, Greece, and the University of Florida, Gainesville (PhD 1983). He is currently a Distinguished Professor of Mechanical and Aerospace Engineering at the University of California, Irvine. He is also Professor Emeritus at the University of Minnesota, where he held the Hermes-Luh Chair (2002-2016) and served as co-director (together with Gary Balas) of the Control Science and Dynamical Systems Center (1990-2016). Dr. Georgiou has received the George S. Axelby award of the IEEE Control Systems Society (in 1992, 1999, 2003, 2017), he is a Fellow of the IEEE, IFAC, and a Foreign Member of the Royal Swedish Academy of Engineering Sciences (IVA).



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