

The Department of Mechanical Engineering Presents

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Title: Be wary of data, which includes having too much of it: lessons from a fly

Abstract: This talk is aimed at early graduate students with a short introduction to data analytics and data visualization. The first part of my talk provides some personally-curated examples from high-impact venues that show how partial data, poor data sampling, or the authors' methodology may have altered the final claims. I will also describe some challenges we face with presenting data, in spite of the advanced software tools available. I will segue to discussing my own research related to optics, where we overcome some limitations processing images with inspiration of a fly's eye. In a nutshell, our work involves spectral and multimodal analyses with data preprocessing, as much as possible. I will conclude by restating my opinions on how we can move forward in this data-rich era, responsibly.



About the Speaker: Professor Vuong is in the UCR Mechanical Engineering Department with cooperating faculty memberships in Materials Science and Engineering, Electrical Engineering, and Physics. She received her Ph.D. in Applied Physics at Cornell, studying optical vortex collapse and filamentation dynamics in Alexander Gaeta's Quantum and Nonlinear Photonics Group and supported by an AT&T Labs Fellowship. With a Fulbright in 2007, she joined the Delft University of Technology Optics Group in the Netherlands, where she studied the near-field scattering in plasmonic structures, then segued into research on nanostructured organic photovoltaics at ICFO- The Institute of Photonic Sciences in Spain with a European Commission Postdoctoral Fellowship. Before coming to UCR, she was a tenured physics professor in NYC. She is a recipient of the 2012 NSF Career Award, a 2016 Sloan-Foundation funded Junior Faculty Research Award, and the 2019 DARPA Young Faculty Award. Today, Professor Vuong's research connects optics with energy-related concepts, fractals, and communication systems.

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