

**Department of Structural Engineering
University of California, San Diego
SE 290 Seminar**



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“Industrial Asset Performance and Management Optimization – a Case for Probabilistic Lifting”

Wednesday, October 17, 2018
12:00 pm - 12:50 pm, Pepper Canyon Hall, Room 122

<https://structures.ucsd.edu/seminars>

Abstract

Despite continuous advance in design and manufacturing of industrial equipment, managing fleets of engineering assets (e.g., thousands of jet engines or aircrafts) is challenging due to the large variation in operating conditions. The importance of asset performance and management optimization is reflected in the very profitable market focused on services and warranties. This talk presents a probabilistic treatment of failure in fleets of industrial assets. In the first part of the talk, one fundamental question is addressed: how does number of observations and fleet size interact with each other in fleet management? With the aid of a numerical experiment, we demonstrate that material capability and commissioning time can drastically influence fleet unreliability. In the second part of the talk, current trends, modeling challenges, and research gaps are discussed. The talk will cover physics-based and machine learning modeling as well as implementation and deployment in current frameworks and high performance computing architectures.

Biography

Dr. Felipe Viana has focused his research on integration of physics-based and machine learning methods applied to probabilistic modeling of critical components with focus on aircraft propulsion, power generation, and oil and gas systems. Before joining UCF, Dr. Viana was a Sr. Data and Analytics Scientist at GE Renewable Energy. Dr. Viana has a PhD in Aerospace Engineering from the University of Florida and a PhD in Mechanical Engineering from the Universidade Federal de Uberlandia. Throughout his graduate studies, he focused on developing methods for multidisciplinary optimization and inverse problems.

*Sponsored by Professor Alicia Kim
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