PURDUE UNIVERSITY

School of Aeronautics and Astronautics & School of Industrial Engineering

COLLOQUIUM

The AAE Fall 2011 Colloquium Series

Cost Estimation in Systems Engineering

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Tucson, AZ

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ARMS 1103

Abstract

Organizations that develop large complex systems continue to struggle with the tension between affordability and capability delivery under tight budget and schedule constraints. One area of concern is systems engineering because of its alleged role in project failures and the lack of metrics that exist to determine its value. This talk will present a parametric model that enables the accurate estimation of systems engineering costs using a model called COSYSMO (Constructive Systems Engineering Cost Model). It also describes the steps involved in empirically validating COSYSMO using historical project data and expert opinion through Bayesian approximation.

To demonstrate its applicability, we provide a specific example of the F-22 fighter jet and estimate the costs of the human systems integration effort associated with its F119 engine. This research helps address the socio-technical implications for the modeling of complex systems as well as the implications for evolving the systems engineering body of knowledge.

Bio

Dr. Ricardo Valerdi is an Associate Professor at The University of Arizona in the department of Systems & Industrial Engineering. His research focuses on systems engineering and cost estimation. He is the co-Editor-in-Chief of the Journal of Enterprise Transformation and served on the Board of Directors of the International Council on Systems Engineering. He received a Ph.D. in Industrial & Systems Engineering from the University of Southern California.

An informal coffee & cookie reception will be held prior to the lecture at 2:30 p.m. in the AAE/ARMS undergraduate lounge (directly in front of ARMS 3rd floor elevators).