The University of Texas Rio Grande Valley
College of Sciences

UTRGV
College of Engineering & Computer Science

FRIDAY, Feb 18th | 3:00PM–4:00PM

SPIE. CHAPTER SEMINAR

Volumetric Data Analysis for Reverse Engineering and Solid Freeform Additive Manufacturing: A Framework for Geometric Metrological Analysis

Abstract

In this talk, we first provide the essential technical foundation and major steps of the VDA framework, where the goal is to bridge the gap between complex closed-shape 3D data structures and advanced multivariate analytical methodologies. This framework is then applied to solve process planning, variation modeling, and tolerancing problems in both traditionally machined parts and general freeform RE, especially laser scanning, and remanufacturing applications.

Several applications of VDA are suggested to transform state-of-the-art analytical methodologies in the modeling/metrology of additive manufactured parts. By utilizing the VDA framework, 3D point clouds can be analyzed using the design of experiments for offline AM quality control. This framework can also be applied for configuration prediction and process parameter optimization for product quality improvement.

Short Bio

Dr. Zhaohui Geng is an assistant professor in the Department of Manufacturing and Industrial Engineering at UTRGV. He received his Ph.D. in Industrial Engineering from the University of Pittsburgh. Dr. Geng is broadly interested in developing statistical inferential methodologies, statistical/probabilistic machine learning algorithms, and large-scale optimization methodologies to solve the problems at the intersection of production systems, methodology, and advanced manufacturing.

Dr. Zhaohui Geng

Zoom Link: https://utrgv.zoom.us/j/99290269755 | Meeting ID: 992 9026 9755
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