Tim Lutz, Ph.D.

Management Science
Darla Moore School of Business
University of South Carolina
1014 Greene Street, Columbia, SC 29208.
(803) 576-8069
tlutz@moore.sc.edu

Education

Ph.D., Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA — 08/2023
Thesis Title: Computational Simulation and Machine Learning for Quality Improvement in Composites Assembly
Advisor: Dr. Xiaowei Yue

M.S., Materials Science and Engineering, University of California, San Diego, CA — 12/2011

B.S., Engineering Physics, Cornell University, Ithaca, NY — 05/2010

Academic Appointments

Clinical Assistant Professor — 08/2023-present
Management Science, University of South Carolina, Columbia, SC

Other Positions and Employment

Engineering Supervisor, REI Automation, Columbia, SC — 2018-2019

Controls Engineer, REI Automation, Columbia, SC — 2015-2018

R&D Engineer, Axelgaard Manufacturing Co., Ltd., Fallbrook, CA — 2012-2015

Honors and Awards

Student Travel Award — 4/2021
NAMRC 49 / MSEC 2021

NSF Student Support Award — 04/2021
QPRC

Qualcomm Innovation Fellowship Finalist — 05/2020

ISE Graduate Fellowship, Virginia Tech — Fall 2019 - Spring 2020

Educational Activities

Teaching Activities in Programs and Courses

Instructor, Operations Management (MGSC 395), University of South Carolina — Fall 2023

Teaching Assistant, Economic Evaluation of Industrial Projects (ISE 5434), Virginia Tech — Spring 2022

Teaching Assistant, Machine Learning for System Intelligence (ISE 5984), Virginia Tech — Fall 2021

Teaching Assistant, Project Management and System Design (ISE 4005/4006), Virginia Tech — Spring 2020, Fall 2019

Teaching Assistant, Experimental Techniques (MAE 170), University of California, San Diego — Fall 2011

Scholarship

Peer-reviewed publications

Tim Lutz, Xiaowei Yue, and Jaime Camelio. “Towards a Digital Twin: Simulation and Residual Stress Analysis in Aerospace Composite Structures Assembly.” *International Manufacturing Science and Engineering Conference*. Vol. 85819. American Society of Mechanical Engineers, 2022.

Areej AlBahar, Inyoung Kim, **Tim Lutz**, and Xiaowei Yue. “Stress-Aware Optimal Placement of Actuators for Ultra-High Precision Quality Control of Composite Structures Assembly.” *2022 IEEE 18th International Conference on Automation Science and Engineering (CASE)*. IEEE, 2022.

Yinhua Liu, Wenzheng Zhao, **Tim Lutz**, and Xiaowei Yue. “Task allocation and coordinated motion planning for autonomous multi-robot optical inspection systems.” *Journal of Intelligent Manufacturing*, pages 1–14, 2021.

Working Papers

Tim Lutz, Yinan Wang, Xiaowei Yue, Jaime Camelio. "Reinforcement Learning for Fuselage Shape Control during Aircraft Assembly."

Yinan Wang, **Tim Lutz**, Juan Du, and Xiaowei Yue. “SmartFixture: Physics-guided Reinforcement Learning for Automatic Fixture Layout Design in Manufacturing Systems.”

Presentations, Posters & Abstracts

Tim Lutz, Xiaowei Yue, and Jaime Camelio. “Towards a Digital Twin: Simulation and Residual Stress Analysis in Aerospace Composite Structures Assembly.” *International Manufacturing Science and Engineering Conference 2022*.

Tim Lutz. Digital Twin Development and Maximum Stress Prediction for Composite Fuselage Assembly. Poster presented at the *Quality and Productivity Research Conference*, 2021, Tallahassee, FL.

Editorial Responsibilities

IEEE Transactions on Automation Science and Engineering, Reviewer 2021, 2022, 2023

Professional Development

FANUC, *HandlingTool Operation and Programming* (robot programming) 2018

ePLAN, *ePLAN P8 Basic Training* (electrical CAD) 2017

Siemens, *TIA Portal Programming 1* (PLC programming) 2015

Cognex, *In-sight Spreadsheet Standard* (machine vision) 2014