

Graduate Student Research Seminar

Spring 2024

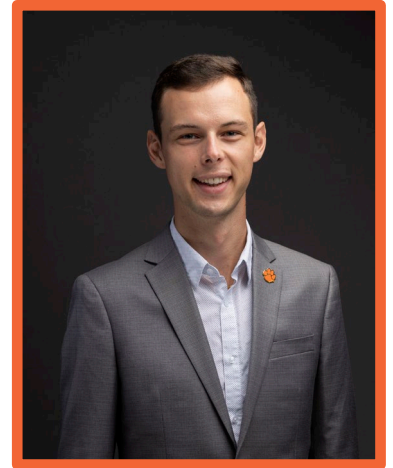
Novel Vector Assignment Approach for Inherent Strain Modeling of Laser Powder Bed Fusion Manufacturing

Lucas Morand

Advisor: Dr. Garrett Pataky

Monday, March 4th

3:00 pm (EST) – 132 Fluor Daniel Building



Abstract

The inherent strain method for laser powder bed fusion additive manufacturing allows for rapidly simulating process-induced distortion while still retaining the influence of thermo-mechanical physics. However, previous implementation of a single vector taken from a global average did not fully capture the known AM process physics. This study included the effects of the rapidly cooled tensile shell and the compressive core from a small-scale model to apply to the part-scale model with multiple vectors of eigenstrains. This novel vector assignment approach better captures the process physics in order to improve additive manufacturing simulation accuracy without significantly increasing computational cost.



Scan the QR code for more
information and a schedule
of upcoming speakers!

