SUNDAR GURUMURTHY

(+44) · 7442278370 ◇ gmsundar15@gmail.com
Orcid ◇ LinkedIn ◇ Cranfield University

EDUCATION

Cranfield University Jan 2023 - Oct 2024
MSc by Research in Manufacturing
Thesis: Understanding and improving the Inherent Strain Method for mechanical analysis of Wire Arc Additive Manufacturing
Supervisors: Dr Yongle Sun & Dr Pradeeptta Taraphdar

- Part of the NEWAM project for developing Wire based DED for Ti6Al4V aerospace components.
- Developed theoretical understanding of strain evolution during various stages of Wire Arc Additive Manufacturing process through thermo-mechanical FE models.
- Proposed modifications to the Inherent Strain Method for increasing accuracy of distortion and residual stress predictions.
- Designed and performed verification experiments for the proposed improved modeling method.

Birla Institute of Technology & Science August 2017 -June 2021
B.E. in Mechanical Engineering
Cummulative GPA: 7.71 on a scale of 10 (Class - I)

WORK EXPERIENCE

WAMC, Cranfield University June 2024 - Present
Research Assistant *Cranfield, UK*

· Involved in multiple industry funded projects to develop Wire Arc Additive Manufacturing for industry adoption.
· Developed thermo-mechanical FE models of CW-MIG process for Additive Manufacturing of duplex stainless steels for predicting micro-structure evolution.
· Created prediction models for Cladding process to understand and mitigate root cause of crack initiation.

Sona Comstar July 2021 - July 2022
GET - Drivetrain Component Design *Gurugram, IN*

· Designed and optimized drivetrain gears manufactured using proprietary precision forging process.
· Worked on in-house software for generating optimized Bezier surfaces for gear teeth to improve noise, load bearing and manufacturability.
· Created mathematical models and scripts for Loaded Tooth Contact Analysis (LTCA).
· Collaborated with several industry clients on design for manufacturing and cost optimization.

Mercedes Benz R&D India February 2021 - June 2021
Student Trainee - Crash Structures *Bangalore, IN*

- Developed Non-Linear Finite Element Model of Fibre Reinforced composites in rubber tires for low speed car crash simulations.
- Developed a finite element mesh model for tires in LS-Dyna with various material and mesh formulations.
- Studied the impact of various air pressure models of tyres on the lagrangian contact at tyre-road interface.
- Developed test plan and procedure for verification of the model.

Daimler India Commercial Vehicles May 2019 - July 2019
In-Plant Trainee *Chennai, IN*

- Perfomed efficiency analysis for rework processes at End of Line.
- Conducted lean manufacturing study for several rework processes and developed proposals to reduce non-value added activities.
- Exposed to root cause analysis for rework processes in the assembly line.

RELEVANT PUBLICATIONS

Full list of publications available on ORCID:0000-0001-5388-8785

[1] J. Walker, B. Mills, Y. Javadi, *et al.*, "Study of residual stress using phased array ultrasonics in ti-6al-4v wire-arc additively manufactured components," *Sensors*, vol. 24, no. 19, 2024, ISSN: 1424-8220. DOI: 10.3390/s24196372. [Online]. Available: https://www.mdpi.com/1424-8220/24/19/6372.

AWARDS

- **AIAA/USU SmallSat Travel Award :** Financial Award sponsored by Blue Orgin to present at the AIAA/USU SmallSat conference.

TECHNICAL SKILLS

Computer Languages	Python, MATLAB, C/C++, BASH, FORTRAN
Simulation Tools	ABAQUS, NASTRAN, LS-Dyna
3-D/2-D CAD	Unigraphics/NX, CATIA V5, Solid Edge, Fusion 360
Experimental Methods	X-Ray Diffraction, Electron Backscatter Diffraction (EBSD), Thermal Imaging, Laser Scanning, Reverse Engineering

REFERENCES

Name & Designation	E-mail
Dr Yongle Sun *Lecturer, Cranfield University*	Yongle.Sun@cranfield.ac.uk
Dr Pradeeptta Taraphdar, *Welding Research Engineer, Jaguar Land Rover*	pkumarta@jaguarlandrover.com

All data in this document is true to the best of my knowledge as on December 9, 2024