

ST Aerospace (Singapore Technologies Aerospace Ltd) is the aerospace arm of ST Engineering with revenue of \$2.09b in FY2015. Operating a global MRO network with facilities and affiliates in the Americas, Asia Pacific and Europe, it is the world's largest commercial airframe MRO provider with a global customer base that includes leading airlines, airfreight and military operators. ST Aerospace is an integrated service provider that offers a spectrum of maintenance and engineering services that include airframe, engine and component maintenance, repair and overhaul; engineering design and technical services; and aviation materials and asset management services, including Total Aviation Support. ST Aerospace has a global staff strength of around 8,000 employees worldwide.

EDB-Industrial Post-graduate Programme (IPP) (2 positions)

Project 1: "Decoupling part geometry from microstructure in directed energy deposition technology: towards reliable 3D printing of metallic components"

Supervisor: Asst Prof Matteo Seita

Additive manufacturing enables the production of components with arbitrary geometries by assembling voxels of material in complex 3D shapes. One of the downsides of this versatility is that the geometry of 3D printed metallic materials also dictates their microstructure. Because of the coupling between geometry and microstructure, it is difficult to print metal parts with uniform microstructure and thus reliable mechanical properties. The goal of this project is to investigate the intertwined relationships between path geometry and microstructure of titanium-base alloys using Directed Energy Deposition (DED) technology and to develop an additive manufacturing standard for printing consistent parts with reliable mechanical performance.

Project 2: "A data driven closed loop feedback system to improve quality in additive manufacturing"

Supervisor: Asst Prof Moon Seung Ki

3D printing or additive manufacturing (AM) offers numerous advantages including the capability of producing sophisticated and customizable components, reduction in production time and flexibility to be used for the variety of repairs and freeform fabrication. Despite its apparent benefits, the use of the AM technologies is still regarded as an exception in industrial application mainly due to two reasons: Quality and Repeatability. This PhD research is focused on improving the quality by investigating process parameters that affect the quality of 3D printed parts, and identifying the relationship between the parameters and the quality using multivariate statistical analysis and data mining techniques.

Support provided

- Full sponsorship for PhD studies under the EDB-IPP scheme with the company
- Company provides and drives industry project with student through close supervision by academic partner
- Monthly salary and CPF contributions pegged at prevailing employer's contribution rate
- Other terms and conditions are subjected to offer details provided by the company upon confirmation

Requirements

- Singapore Citizens / PRs Only
- Eligible for PhD studies with a good Bachelor degree (at least 2nd Upper Honours)
- Jointly selected by Company and University

If interested, please send in your resume to Ng Suan (suan.ng@ntu.edu.sg) indicating the project you are applying for.

* Pending EDB approval