

# Master thesis in cooperation with Swinburne University, Australia for mechanical engineering

## Digital Design Transfer Automation

### Keywords:

Composite Manufacturing; Computer-Aided Engineering Automation; Programming;

### Description:

Swinburne University of Technology has joined Australia's efforts in advancing and spearheading the transition of Australian manufacturing industries into a modern digitalized economy through the adoption of Industry 4.0 technologies and workforce transformation. To achieve this goal, Swinburne University of Technology has joined multiple international industry partners and runs one of six Industry 4.0 Testlabs in Australia with the focus on "Composite Product Automation". This led to the establishment of the [Swinburne/CSIRO Industry 4.0 Testlab for Composite Additive Manufacturing](#). In this work, we seek to advance the integration of engineering design efforts, including Computer-Aided Engineering and the automated component production that the Testlab offers. The Computer-Aided Design model's geometry needs to be 'flattened' into an equivalent 2D layup consisting of discrete tapes of a fiber reinforced material. The layup is further transferred to the production systems (FILL Multilayer) Software by the interface shall be developed in this thesis.

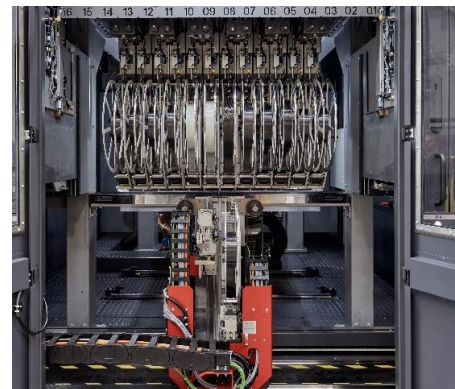


Figure 1: FILL Multilayer Inside View

The work will be jointly supervised together with Swinburne University (A/Prof Boris Eisenbart, Research Director of the Industry 4.0 Testlab). You get the interesting opportunity of physical verification of the integration on the actual Multilayer locally (!) in Melbourne, Australia. Visa acquisition costs/fees are not covered, yet a travel allowance can be granted.

**Starting date:** February 2023

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