

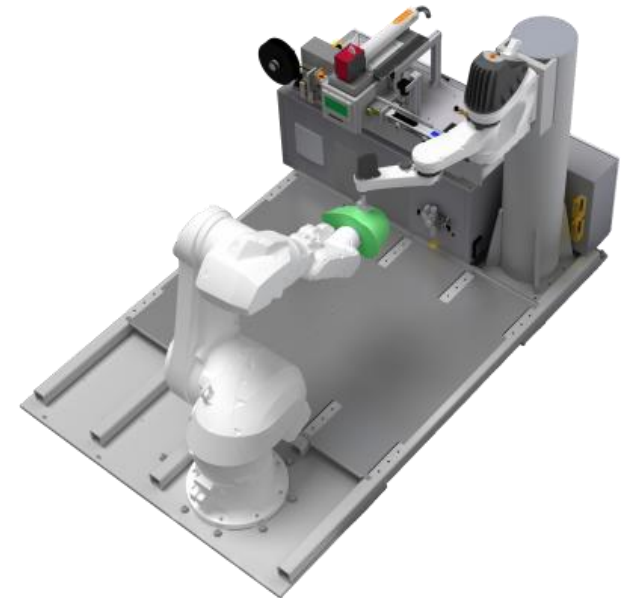
# An application to compute lines of flux from Finite-Element simulation results (Cevotec GmbH)

## Project Characteristics

Modeling: ★★☆☆☆  
Mathematics: ★☆☆☆☆  
Programming: ★★★★★

### Setting:

- Cevotec is a startup company which automatizes fiber patch placement for automated manufacturing of complex carbon parts
- Cevotec currently offers the hardware product “SAMBA” for manufacturing the parts and the software product “Artist Studio” for modelling and optimizing the patch layup.
- Within the next development cycle the software product will be enhanced to allow an optimization w.r.t. the lines of flux coming from a Finite-Element analysis to produce optimized part w.r.t. the applied loads and forces.
- To this approach, the results of a Finite-Element analysis have to be analyzed and the lines of flux have to be computed, discretized and projected onto the original CAD surface.



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### Your Tasks:

- Create a database to represent Finite-Element results and read result files into the database coming from commercial FE software products.
- Compute and extract the lines of flux w.r.t. the Finite-Element analysis results.
- Projects the extracted lines onto the CAD surface and creates geometric curves.
- Those curves will then be consumed by our algorithm to compute an automated fiber patch placement.

