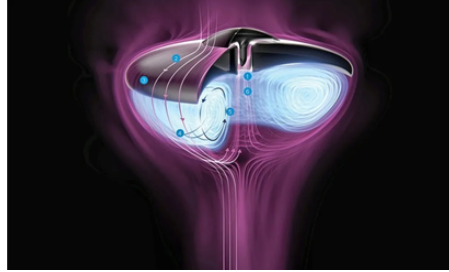


Student Assistant (SHK)

Design and Prototyping of a Modular Single-Rotor Flight Demonstrator



Project:

Single-rotor drones are hard to stabilise, and a whole range of actuation approaches compete to solve that problem. Vortifer® is a new platform concept whose key characteristics promise unique flight capabilities and agility. To investigate its flight mechanics further, we need an experimental setup built around a modular prototype — one where aerodynamic shapes, flap arrangements and mountings can be exchanged between test runs instead of rebuilt from scratch.

Your contribution:

This is where you make the difference: you accompany the modular components through the whole development chain — from the first concept sketch, through detailed CAD, to the finished part in your hands. That includes deciding, together with us, which production route and which material fits a given purpose, sourcing what is needed, and building, mounting and testing the result yourself.

Tasks:

- CAD design of torus, duct and flap mounts as exchangeable components, and production by 3D printing and CNC
- Evaluation of production procedures and materials for a given purpose, including purchase of components
- Fastening solutions that secure mechanical and electronic components under rotor load and aerodynamic forces
- Measures to reduce structural vibration of the test rig, and testing of the components

Your Profile:

- Studies in mechanical engineering, aerospace, mechatronics or comparable
- CAD workflows for 3D printing and CNC — experience or willingness to learn
- Knowledge of manufacturing techniques, especially rapid prototyping
- Hands-on assembly and experimental work
- Beneficial: hobby and extracurricular projects — Formula Student (FSA), drones, 3D printing

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