

Forschungspraxis

Thesis Opportunity: Concept Overview of Fluidic Shutter Using Finite Element Method

Thesis Topic:

Fluidic shutters are not yet extensively researched, but they hold significant potential for enhancing acoustic performance. Various types of fluidic shutters can be distinguished, each with unique mechanisms. Thus, it is essential to develop a comprehensive concept overview of these different shutter mechanisms. This research project aims to explore the design, simulation, and analysis of fluidic shutter mechanisms using finite element method (FEM) techniques, as well as other approaches such as analytical methods and lumped element models (LEM).

Key Responsibilities:

- *Literature Review:* Conduct a comprehensive review of existing fluidic shutter designs.
- *Concept Development:* design and improve existing fluidic shutter mechanisms.
- *Finite Element Analysis:* Utilize FEM software to simulate fluid flow and mechanical interactions within the shutter system.
- *Documentation:* Document the entire research process, including methodology, simulation results, and conclusions.

Qualifications:

- Currently enrolled in a relevant degree program (e.g., Electrical Engineering, Mechanical Engineering, Aerospace Engineering, Fluid Dynamics, or similar fields).
- In best case solid foundation in fluid mechanics and finite element analysis.
- Experience with FEM software tools (e.g., COMSOL).
- (optional) Proficient in CAD software and 3D modeling.

How to Apply:

If you are passionate about fluid dynamics, finite element method and eager to contribute to innovative research, we encourage you to apply for this thesis opportunity. Please send your resume and your academic transcripts to **christian.goerner-tenorio@tum.de**.