# EP/BA/SA/MA

# Research field: UAS research, Aircraft performance





## **Topic:**

Thesis Opportunity in UAS Operations and Research



### **Topic:**

Research and development in all operational aspects of Unmanned Aerial Systems (UAS), including development, flight testing, ground station operations, and post-processing.

#### **Description:**

At LLS, we operate a diverse fleet of UAS, ranging from small electric aircraft to large turbine-powered platforms, including VTOL and conventional configurations. Our research focuses on optimizing and analysing aircraft performance, requiring an integrated system of airframe, ground control station, and preand post-flight operations.

To support these efforts, we develop and integrate sensors to collect critical flight data and implement post-processing scripts to facilitate data organization and evaluation.

The specific thesis topic will be defined collaboratively, ensuring alignment with both the student's expertise and ongoing research needs.

You will contribute to all aspects, starting from experiment design, through systems development and integration, possibly including flight testing and dataanalysis.

#### **Student Profile:**

We seek **highly motivated** students who are eager to contribute to impactful research in aircraft design and operations. You will work iteratively and continuously improve your methods and tasks. Candidates must demonstrate both technical competence and a **strong commitment** to achieving high-quality results. To be considered, you should have experience in at least three of the following areas: Fakultät für Luftfahrt, Raumfahrt und Geodäsie Lehrstuhl für Luftfahrtsysteme

- Flight Control Systems: Experience with ArduPilot, preferably including LUA scripting or codebase modifications.
- **UAV Development:** Hands-on experience as a model aircraft pilot and builder (including drones, provided they are self-built).
- Microelectronics: Advanced projects involving Arduino or beyond, preferably with PCB design experience.
- Programming: Proficiency in Python, with basic knowledge of object-oriented programming, pipenv, and git.
- Data Handling & Visualization: Experience with tools such as InfluxDB, Grafana, and Linux servers.
- Teamwork & Engagement: e.g.: Active and ongoing participation in a technical student group for at least one year.

## **Application Requirements:**

Interested candidates should submit:

- A concise motivation letter explaining their interest and relevant experience.
- A basic CV outlining their skills and background.
- A current grade report.

#### Workload & Expectations:

This thesis demands full commitment and cannot be pursued as a side project. Due to the hands-on nature of the research, remote work is not possible. Regular in-person attendance at the chair is strongly recommended for achieving the best results.

#### **Benefits:**

Your work will have a **direct impact** on ongoing research and operational improvements.

You will **deepen your expertise** in fields you are passionate about.

You will gain **hands-on experience** with cuttingedge UAS technology and methodologies.

If you are ready to take on a challenging and rewarding thesis project, we look forward to your application!

#### **Contact:**

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