

## Student Assistants wanted 2D motion analysis with Machine Learning

### Motivation:

In the field of oil mist filtration, the finest droplets are filtered out of a gas stream using so-called coalescence filters, which usually consist of a tangle of fibers. The aim of current work is to gain a fundamental understanding of the mechanisms at work between fibers and droplets under vibrating ambient conditions.

### Job Description:

In this context, the movement behavior of individual droplets on a fiber is analyzed. To differentiate between different forms of movement of the droplet, a large number of videos are to be analyzed with the help of Machine Learning. The forms of movement and their temporal extension are to be determined. In addition, the videos are to be prepared by signal processing in such a way that meaningful features can be derived for the analysis. The task is to be implemented using Matlab.

If I have already aroused your interest at this point, then just come by my office. Then I'll show you the topics in detail and we can design your work according to your wishes.

### Your Benefits:

- The working hours and the scope of work can be handled flexibly according to your wishes (I would prefer 12+ hours per week)
- You can complete your tasks independently
- Gain insights into experimental research
- Learn programming skills and dive into Machine Learning
- An environment where it is fun to work

### What is important to me:

- Critical questioning of your own results
- Interest in the topic of Machine Learning
- Ideally, you intend to support me in the long term
- Knowledge of Matlab and Machine Learning is helpful.

Best regards,  
Alexander

**Start time: Any time**

**Type of work: Experimental, Programming**

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