

**Earliest Start:
Now!**



Institute for Automation and Applied Informatics (IAI)

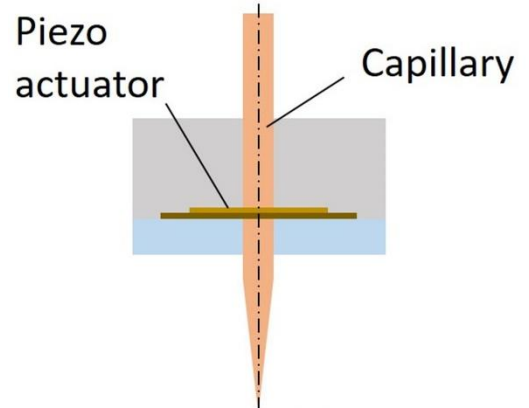
Bachelor's / Master's Thesis

Development of a measurement procedure for a piezo-electric atomization unit

Digital, additive procedures in order to produce electronic structures and components are gaining in popularity.

Our patented Aerosol-on-Demand (AoD) printing process atomizes ink loaded with nanoparticles, accelerates and focusses it through the use of a sheath gas towards a substrate. The aerosol spray is generated through ultrasonic atomization via a piezo actuator.

We are developing a digital twin for our AoD printer which is supposed to model the atomization process but we need detailed information about the piezo-constants, geometry and mechanical properties for the modelling. In order to do so, a testbed/-procedure should be conceptualized which is able to determine the required properties of the atomization unit through measurements that are simple to do so that the resulting values can be transferred to the digital twin.



Tasks:

- Conceptualization, evaluation and selection of possible measurement techniques for electrical, mechanical and geometrical properties
- Realization of the measurement process and construction of aids
- Proof of function through measurements

Education, Experience, and Skills:

- Area of study: Mechanical Engineering, Mechatronic
- High motivation and joy at working independently
- A sense of responsibility and safe working style
- Basic knowledge in python
- Thesis can be written in German or English

For further information, please contact:

Hanna Pfannenstiel (hanna.pfannenstiel@kit.edu)