

DESCRIPTION DIPLOMA/MASTER-THESIS

Development of algorithms for image analysis of printed spots on a sensor matrix

About us

Silicon Austria Labs (SAL) has been founded to be Austria's top research center for electronic based systems (EBS). The application-oriented center offers cooperative research at its locations Graz, Linz and Villach in pioneering research divisions: Sensor Systems, RF Systems, Power Electronics, System Integration and Embedded Systems. In the network of science and economy, SAL is offering key enabling technologies for electronic based systems and is laying the basis for smart products and processes that create the foundations for things such as Industry 4.0, the Internet of Things (IOT), autonomous driving, cyber-physical systems (CPS), AI, smart cities, smart energy and smart health.

We offer

- Opportunity to work on a hot topic with scientific and industrial collaborations.
- Cutting edge laboratories and equipment.
- Joint supervision of academic work in cooperation with renowned Universities.

Diploma/Master-Thesis

Among other realizations, colorimetric sensing can be implemented by the evaluation of the color change of inkjet-printed dye spots on a substrate. For analyzing the color change, the covered area and the shape of the spots needs to be determined on a captured image. The spots can be arbitrary in number, position, size and shape.

The goal of the master thesis is to develop a spot area recognition and evaluation software on a Raspberry-Pi microcontroller system.

In particular, the candidate will:

- Develop software for automatic spot area recognition.
- Elaborate a spot color change evaluation algorithm.
- Optimize the system on printed substrates.
- Implement the software on a Raspberry-Pi system.
- Write and defend the thesis, optionally write a scientific publication.

Profile / Requirements

- Master student in electronics, computer science, information technology, or related fields.
- Very good programming skills, experience with Python is a plus.
- Knowledge in machine learning and image processing.
- Self-reliant, well organized and enjoying work in a dynamic and multicultural team.
- Oral and written communication skills in English.

Start Date / Duration / Contract

- Start date (planned): June 1st, 2021
- Duration (planned): 6 Months
- Payment: 1.545 € monthly gross (38,5 hours per week)
- Place: Silicon Austria Labs, Europastraße 12, 9524 Villach, Austria

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