



# When Function Meets Time

Method and Tools for Developing Excellent Real-Time Systems

INCHRON – that is passion for technology. We are thrilled about all breakthroughs we achieve hand-in-hand with our customers in making embedded systems development more efficient, predictable, and user friendly. To provide world-class solution for developing autonomous driving systems motivates us every day. In the topic of autonomous driving, we are looking for a **master student for:**

## **Trace and Model Based Timing Analysis of a Computer Vision Application for Autonomous Driving (f/m/d)**

A central part of modern systems for driver assistance, highly automated driving and autonomous driving are computer vision algorithms. They are used to extract required information from camera images and require lots of computation power. In this master thesis / internship a sample computer vision application shall be setup on a Raspberry Pi and a concept for tracing of the real-time behaviour shall be developed. The relevant event chains, requirements and performance parameters shall be identified. The AUTOSAR consortium provides a demonstrator with a computer vision application based on OpenCV. This is a good starting point for own experiments.

In a second step an approach for the model-based timing analysis shall be developed. A timing model shall be created that allows the analysis of the relevant event chains, requirements and parameters. The timing model shall consider modelling of operating system, hardware accelerators, internal communication.

Optional extension: The computer vision application provided by AUTOSAR also runs on a Renesas R-Car H3, that provides more dedicated hardware resources and allows tracing based on ARM Core Sight. The application should be installed on Renesas H3 and the performance shall be compared to the Raspberry Pi.



Interested? Please get in contact: [jobs@inchron.de](mailto:jobs@inchron.de). For further information: +49 331 - 2797892-0.

Please be aware of our [Privacy Policy](#)