



Student Assistant (m/f/)*

Privacy Friendly Computer Vision on Edge Devices

Autonomous vehicles employ cameras and machine learning based computer vision techniques to keep track of their surroundings and navigate through traffic. Alas, connected cars equipped with non-stop recording cameras raise serious privacy issues. Video footage that is sent to cloud services without proper anonymisation neglects the privacy of other road users and can be reused without their consent¹.

In order to prevent autonomous cars from becoming self-driving surveillance cameras, Fraunhofer AISEC has developed a concept to enable processing of video material on embedded devices while proving that only pre-defined, non-sensitive information can leave the processor and thus the vehicle. The workload is split into privacy sensitive and non-sensitive parts with strong isolation and attestation provided by GyroidOS².

Task Description

We seek to build a showcase implementation that demonstrates various aspects of our solution. Your tasks as a student assistant in this project include developing an example computer vision application, integrating it in the container-based architecture of GyroidOS and building the demonstration setup using cameras and single-board-computers.

Requirements

- Programming skills in Python, Rust, Go or C++
- Interest in working with embedded hard- and software
- You have heard of OpenCV and GStreamer
- Ideally experience in embedded development using Yocto
- High motivation and ability to work independently

Contact

Please send your application with current CV and transcript of records to:

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¹<https://www.theguardian.com/technology/2023/jul/04/smile-youre-on-camera-self-driving-cars-are-here-and-theyre-watching-you>

²<https://gyroidos.github.io>