

Master's Thesis

# Embedded TPU-based Inertial-Camera Edge AI

In this project, we aim to capture low-latency RGB data from a CSI camera in sync with an inertial measurement unit(IMU) and use the TPU unit for AI processing, especially for real-time segmentation applications. The first step of the project is to modify the provided embedded Linux kernel and the embedded board with an ARM Cortex processor to communicate with the TPU module. In the next step of the project, the synchronization of the inertial measurement data must be addressed with the frames of the RGB data from the camera. We use Edge TPU ML accelerator ASIC designed by Google that provides high-performance ML inferencing for TensorFlow Lite models.

## Prerequisites

Good programming skills in C++.

Strong understanding of embedded Linux programming.

Knowledge about Debian Kernel and UBoot.

Knowledge about ARM Cortex Processors.

## Contact

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## Advisors

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