



# Vignesh Balasubramani

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## EXPERIENCE

**Working student** – Junior software developer July 2023 – Sept 2024  
Akkodis Germany Solutions GmbH Gaimersheim, Germany

- Developed custom controller modules in C++ and integrated them with behavior planning, SLAM, and perception tasks for the robot in ROS2.
- Performed unit testing in Python and C++ to validate individual components and ensure reliability.
- Conducted integration testing in ROS2 and system-level testing using Gazebo to simulate and evaluate the robot's navigation and interactions.

**Student research assistant** – Crash simulation and Reinforcement Learning Mar 2023 – July 2023  
Carissma – THI Ingolstadt, Germany

- Created a feature generation tool in Matlab that generates a simplified model from a complex finite element model of a car for crash simulation created in LS-DYNA.
- Used this simple model to train a Reinforcement learning agent to autonomously generate crash algorithms for crash safety.

**Working student** – Simulation and test engineer May 2022 – Feb 2023  
AVL Deutschland GmbH Ingolstadt, Germany

- Created one dimensional refrigerant simulations for cabin cooling and battery thermal cooling for different vehicle modules.
- Generated equivalent fast running models in Matlab Simulink and validated their performance.
- Setup a HiL test for the climate modules in the passenger car using Vector tools.

## EDUCATION

**Masters in International Automotive Engineering** Mar 2021 – Sept 2024  
Technische Hochschule Ingolstadt Ingolstadt, Germany

- **Grade:** 1,3
- **Coursework:** Vehicle Safety, ISO26262, ADAS, Machine Learning, Sensor technology and signal processing, Testing and safety methodology
- **Projects:** Sensor data fusion, Effect of color on LiDAR intensity, Benchmarking of solid state LiDARs
- **Thesis:** Trajectory planning for autonomous cars using Reinforcement learning

**Bachelors in Mechanical Engineering** June 2014 – Apr 2018  
PSG College of Technology Coimbatore, India

- **Grade:** 1,7
- **Thesis:** Design and fabrication of soft tactile sensors

## SKILLS

**Languages:** German(B1), English(C2), Tamil(C2)

**Programming Languages:** Python, C, C++, Matlab and Simulink

**Operating systems:** Linux, ROS2, Windows

**Others:** Tensorflow, Pytorch, Keras, OpenCV, Git, Docker, Gazebo, CARLA, Catia, ABAQUS, Nastran, Vector, CANoe, dSpace