HARISH NATARAJAN RAVI

UNIVERSITÄT PADERBORN | EMBEDDED & AUTONOMOUS SYSTEMS ENGINEER

Highly motivated and experienced software development engineer with a strong C/C++, Python, and Linux environment background. Expert in software development, and project collaboration. Flexible to relocate to align with project needs and career growth.

CONTACT

- ✉ harrish.nr@gmail.com
- ☎ +49 1759526201
- 📍 Bahnhofstraße 13, 71229 Leonberg
- in Harish Natarajan Ravi
- ⌨ GitHub-harishnr93

SKILLS

Programming
- C/C++ ●●●●○
- Python ●●●●○
- Matlab/Simulink ●●●○○

Operating Systems
- Linux ●●●●●
- Windows ●●●●●

Software, Tools & Platforms
- ROS1/ROS2 ●●●●○
- Sensor Fusion ●●●●○
- SLAM ●●●●○
- Object Detection ●●●●○
- Machine & Deep Learning ●●●●○
- Git/Docker/Kubernetes ●●●●○
- CI/CD pipeline ●●●●○
- Testing and Debugging ●●●●○
- AUTOSAR & ASPICE ●●●○○
- Jetson Nano/Raspberry Pi ●●●○○
- Data handling/analysis ●●●●○

Languages
| English | Native Speaker |
| Deutsch | Intermediate |

EDUCATION

Masters in Computer Engineering
📅 Oct 2020 - Sep 2024
📍 *Universität Paderborn, Germany*

B. Eng. in Electronics and Communication Engineering
📅 Sep 2011 - Jul 2015
📍 *Visvesvaraya Technological University, India*

CERTIFICATES

- Self-Driving Cars Specialization
- Machine Learning Specialization
- Deep Learning Specialization
- TensorFlow Developer Specialization
- Advanced Course in Embedded Systems

WORK EXPERIENCE

ADAS Research Intern and Master Thesis
Porsche Engineering GmbH 📅 Sep 2023 - Sep 2024
📍 *Mönsheim, Germany*
- Designed and implemented parking map reconstruction pipeline using SLAM.
- Developed LiDAR-based relocalization modules for generated parking map.
- Employed loop closure for parking map trajectory utilizing sensor data.
- Implemented methods for supporting HMI parking functions.
- Enhanced the performance of parking assist systems.

System Development - Video Perception
Robert Bosch GmbH 📅 Mar 2023 - Aug 2023
📍 *Stuttgart, Germany*
- Performed comprehensive analysis for L3 camera-based parking assist systems.
- Conducted verification and validation ensuring compliance with specifications.
- Collaborated with teams to ensure system reliability and performance.

Student Research Assistant
Fraunhofer IEM 📅 Sep 2021 - Feb 2023
📍 *Paderborn, Germany*
- Designed and implemented car-to-cloud demonstrator using simulators.
- Performed data extraction and analysis for telemetry data (SDV project).

Software Developer
Robert Bosch Engineering And Business Solutions Pvt Ltd 📅 Apr 2017 – Sep 2020
📍 *Bengaluru, India*
- Developed service layer functionalities for the DCM package.
- Implemented functions for OBD modules to aid Application layer.
- Responsible for debugging and testing of OBD functional modules.
- Experience in Functional Safety, Diagnostics, ADAS/AD, and ECU Protocols.
- Worked closely with cross-functional team for platform release activities.

Technical Analyst
IBM India Pvt Ltd 📅 Jul 2015 – Apr 2017
📍 *Bengaluru, India*
- Implemented test automation scripts and worked on functional tasks.
- Performed server node migrations and cluster booting tasks without impact.

THESES AND PROJECTS

Generation and Relocalization of Parking Maps
- Designed and implemented a parking map pipeline using SLAM algorithms.
- Reconstructed and Relocalized vehicle within the generated parking map.
- Evaluated the real-time performance of the pipeline in vehicle and simulation.
- Enhanced the performance of parking assist systems.

Disaster Response Robots
- Implemented LOAM pipeline to map and localise the environment.
- Enhanced the real-time performance of the pipeline using loop closure methods.
- Developed abstraction to plugin key points extraction and descriptor algorithms.

REFERENCES

- Prof. Dr. Erdal Kayacan <erdal.kayacan@upb.de>
- -Ing. Jing Gong <jing.gong@porsche-engineering.de>

Research and Projects:

- **Autonomous Vehicle Perception**

- **Visual Odometry**

- **Stereo Depth Estimation**

- **Robots Path**

- **Simultaneous Localization and Mapping**

- **AlexNet, VGGNet, Vision Transformer**

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Porfolio: Harish Natarajan Ravi 🔗

GitHub: harishnr93 🔗

Email: harrish.nr@gmail.com

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