

Balachandra Bhat

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Robotics Software Developer with Strong Technical Foundation and Comprehensive Expertise in Building the **End-to-End Robotic Systems** with a passion for low-level systems and open-source technologies.

Skills

Programming Languages: Proficient in: **C/C++**, **Python**, Familiar with: Javascript/Typescript.

Web Frameworks: React | Database: MongoDB | Familiar with: Node.JS, fastAPI

Embedded Linux: **Linux Kernel**, **Nvidia Jetson Platform**

Robotics: **ROS2**, **Robot Manipulation**, **Navigation**

Others: **GH Actions**, **Docker**, **Ansible** | Cloud: Familiar with: AWS, Digital Ocean

Machine Learning Fundamentals | Gstreamer, OpenCV

Embedded Systems: Renesas, ESP-IDF, FreeRTOS

Languages: English C2, German B1, few Indian Languages

Experience

Robotics Software Developer

Lemvos GmbH, Augsburg

January 2024 - current

- Building the complete software infrastructure for Lemvos GmbH from scratch.
- BSP development for the custom robotic controller featuring **NVIDIA Jetson Orin** series SOMs, onboard MCU and proprietary carrier board.
- **Micro-ROS** based firmware development for Renesas RA series MCU.
- **ROS2 driver development**, robot navigation, remote control, etc.

Engineering Project

Center Robotics THWS, Schweinfurt

November 2023 - January 2024

- Making the humanoid robot play the piano.

Bachelor Thesis

Center Robotics THWS, Schweinfurt

August 2023 - January 2024

Title: Advanced collision avoidance in human-robot collaboration

- Eye gaze detection and human pose estimation, pose forecasting.
- Dynamic robot-path re-planning based on human movements, integration of MoveIt2 hybrid planning.

Software Developer Intern

Center Robotics THWS, Schweinfurt

March 2023 - July 2023

- Implemented a low-latency task scheduler for the human-robot collaborative assembly process.
- Integrated the **PyQt** based worker guidance system into **ROS** environment.
- Developed flexible web application for assembly sequence planning using **Angular** framework.
- Enhanced the **Node.JS** and **MongoDB** backend, cutting the data over/under fetching by **40%**.

Student Assistant (AI/ML)

Fraunhofer IPA, Schweinfurt

June 2022 - February 2023

- Implemented an object detection model for detecting assembly progress and correctness.
- Developed an automated data annotation tool for 6D pose estimation.
- Implemented an automated data collection and pre-processing pipeline for 6D pose estimation.

Hobbies

- **Self Hosting / Home-Lab** : Set up and managed multiple self-hosted services on an Intel NUC to enhance skills in DevOps, server administration, and networking.
- **Open Source** : Actively contribute to open-source projects, including ROS 2 drivers for CEVA BNO08x IMUs, Ublox GNSS modules.