Rushik Sai Jakka

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Summary

Master's student in Control Microsystems & Microelectronics seeking a thesis or working student position in Automation & Robotics at Utica Robotics. Proficient in Python-based robotic programming (ROS 2) and sensor data analysis (Pandas, NumPy, SciPy). Experienced in developing modular automation solutions, conducting experimental validation, and managing projects from concept to completion. Skilled in Git for collaborative development and eager to apply theoretical image processing knowledge while learning OpenCV for computer vision software development tasks.

Education

University of Bremen (Faculty-1: Natural science (Physics/Electrical Engineering) **04/2024 – Present**
M.Sc. in Control Microsystems and Microelectronics *Bremen, Germany*

VNR Vignana Jyothi Institute of Engineering and Technology **08/2019 – 05/2023**
B.Tech in Electronics and Instrumentation Engineering *Hyderabad, India*

Work Experience

ROS 2 Navigation System (Python) **Oct 2023 – Present**
University of Bremen *Bremen, Germany*

- Developed a ROS 2-based navigation system for TurtleBot on Ubuntu (Linux), using Python to integrate sensor streams for autonomous movement based on environmental triggers (e.g., door detection).
- Hosted code on GitHub with detailed READMEs for collaborative development and documentation (github.com/rushiksai).
- Utilized RViz and Gazebo for simulation, reinforcing sensor-based measurement and validation workflows.
- Executed offline analysis of collected workspace data with the TurtleBot.

Scientific Practice: Conference Data Analysis **Apr 2024 – Present**
University of Bremen *Bremen, Germany*

- Analyzed large-scale sensor datasets with a statistical approach, using Python (Pandas, NumPy, SciPy, Seaborn) to perform noise spectrum and histogram analysis for conference research presentations.
- Developed methodologies for data processing, including signal filtering (Butterworth filters via SciPy) and time constant analysis, to validate sensor performance under varying conditions.
- Generated high-quality visualizations with Matplotlib and Seaborn, ensuring clear communication of statistical insights for academic and industry audiences.
- Collaborated with peers using Git for version control, maintaining detailed documentation to support reproducible research.

Modular Wheelchair System (B.Tech Final Year Project) **Jan 2023 – May 2023**
VNR Vignana Jyothi Institute of Engineering and Technology *Hyderabad, India*

- Designed a Python-based control system for a modular wheelchair, integrating Raspberry Pi and Arduino for multimodal control (joystick, touchscreen, voice commands).
- Applied sensor integration principles to enhance accessibility for GBS patients.

Skills Summary

Programming: Python (Pandas, Matplotlib, NumPy, SciPy, Seaborn), C++ (learning)
Tools: Git (GitHub), MATLAB, ROS 2, RViz, Gazebo, Siemens PLC (Ladder Logic), AutoCAD
Additional: Statistical analysis (noise spectrum, time constant, histogram), sensor characterization (MEMS, mobile sensors via Phyphox), signal processing (Butterworth filters), theoretical image processing (MathWorks, Baffellor University), deep learning (ongoing), PLC programming, documentation (GitHub READMEs)
Soft Skills: Communicative, committed, enthusiastic, structured, independent

Volunteer & Leadership Experience

IEEE SB VNRVJIET **08/2020 – 08/2023**
Chairperson (Final Year) & Core Design Member *Hyderabad, India*

- I have conducted and participated the benchmark experiments for introduction to robotics from RAS of IEEE student branch
- Contributed to and supported event documentation using IEEE's vTool software on internal wikis

Additional Information

- **Languages:** English (Fluent), German (A2 - Basic)
- **Courses:** Computer Vision Basics (Baffellor University), Image Processing Onramp (MathWorks), Deep Learning (ongoing)
- **Enthusiasm:** Passionate about applying innovative solutions in robotic manufacturing and computer vision, eager to learn OpenCV, perception algorithms and contribute to Robotics companies, scanning robot technology.