DARSHAN BAKILANA RAMESH

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Am Herrenrödchen 1a, 99427 Weimar, Germany (Ready to relocate)

github/darshanbakilanaramesh

SKILLS

Programming & Scripting: Python, Java, C++, MATLAB, Octave, Bash, SQL

Platforms & Environments: ROS, Raspberry Pi, Jetbrains IntelliJ IDEA, PowerShell, Github, Jupiter Notebook

DevOps & Tools: Ubuntu (Linux), Docker, Git, JIRA, Atlassian Confluence, Gradle, Shell Scripting, CI/CD

Modelling & Additional Tools: Catia, Unigraphics (NXCAD), Ansys, Fusion 360, AutoCAD, QGIS, Autodesk Inventor, Lightroom

WORK EXPERIENCE

07/2024 – 04/2025
Weimar, Germany

Master Thesis - Machine Learning & Data Engineering
Bauhaus university Weimar
Title: Extraction and Analysis of Dataset Constraints for Plausibility of Data.

- Designed and implemented a framework to extract, evaluate, and compare dataset constraints using both **human-defined rules** and **machine-learned models** (e.g., **Isolation Forest**).
- Analyzed classifier disagreement (**Decision Trees** vs. **Support Vector Machines**) to identify implausible data points and generate targeted test datasets.
- Developed algorithms to automatically synthesize plausible datasets that strictly satisfy extracted constraints using formal reasoning via **SMT solvers (Z3)**, improving constraint validation reliability.
- Used **Python** and SMT-LIB with libraries such as **NumPy**, **Pandas**, **Scikit-learn**, **PyTorch**, and **Matplotlib**; developed and tested in **Jupyter Notebooks** and **Visual Studio Code** with integration of **MLDiff** for constraint validation.

08/2022 – 11/2022
Lindau, Germany

Software Developer
Continental AG

- Designed and deployed **CI/CD pipelines** on a **Linux** based High Performance Computing (**HPC**) system, reducing software build and integration time by approximately **30%** for autonomous driving platforms.
- Developed **Python** scripts for receiving, processing, and segregating **LIDAR** sensor data from autonomous vehicles, enabling efficient data flow into testing and analytics modules.
- Utilized **GitHub** for version control to manage collaborative script development and documentation
- Created custom queries using Jira Query Language (**JQL**) to allow team members to query project progress and visualize **KPIs**, improving transparency across cross-functional teams.
- Authored and maintained technical documentations in **Confluence** and developed interactive **dashboards**, enabling real-time visualization of development metrics for both technical and non-technical stakeholders

PROJECTS

Masters Project - Software Engineering for Trusted Autonomous Vehicles

- Developed a software framework for (small-scale or virtual) autonomous vehicles. Implemented **Lane detection** (**Image processing**), **Object detection** (**Lidar**), **Object recognition**, path planning and maneuver execution, **software architecture** and interfaces, and software quality assurance (testing, simulation).
- Software: **Ubuntu 20.04, Python (OpenCV , NumPy), ROS (Noetic), Rviz**
- Hardware: **LEGO EV3 , Raspberry Pi**

Bachelor Project - Design and fabrication of pesticide spraying robot

- Designed and developed an **automated pesticide spraying robot** using a **rocker-bogie** mechanism for terrain navigation. Analyzed robot mobility across uneven agricultural fields and optimized stability. Developed a control system for autonomous navigation and efficient spraying.
- Software: **C++**, **CATIA**, **ANSYS**, **Autodesk Inventor**
- Hardware: **Arduino Mega 328**, **L293D H-Bridge IC**

Diploma Project - Fabrication of three wheeled handicapped steering propulsion

- Software: Catia

EDUCATION AND TRAINING

04/2025 — Weimar, Germany
Digital Engineering, M.Sc.
Bauhaus university weimar
Field(s) of study: Computer Science and Engineering
Modules: Machine Learning, Algorithms and Data Structures, Object-oriented Programming, Software Engineering, Statistics, Photogrammetric Computer Vision, Image analysis and object recognitions, Advanced BIM, etc

08/2019
Mechanical Engineering, B.E.
Dayananda Sagar College of Engineering

LANGUAGE SKILLS

- **German**
  (**B2** – Professional working proficiency)
- **English**
  (**C1** – Advanced)
- **Kannada**
  (Mother tongue)

CERTIFICATES

- Java programming masterclass
- Python programming masterclass
- Awarded ‘Best Innovative Project’

HOBBIES AND INTERESTS

- Photography
- Karting
- Cookery
- PC games
- Dance

DECLARATION

I hereby declare that the above-written particulars are true to the best of my knowledge and belief.

Darshan Bakilana Ramesh
Weimar, Germany