

Jayesh Santosh Tawade

LinkedIn | Github

Languages: English (C1), German (B1), Hindi (Native), Marathi (Native)

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EXPERIENCE

- Research Associate** Regensburg, Germany
University of Regensburg Sept. 2024 – present
 - Pursuing research in multi-human-multi-robot collaboration, investigating task allocation, control sharing and human ergonomics for effective team dynamics in HRC environments.
 - Responsible for setting up the robot lab, including drafting procurement plans, researching hardware, software, and suppliers, to meet the research needs.
 - Assist in the development of teaching material, conduct literature reviews and contribute to academic research papers and seminars. Supervise Bachelor and Master thesis students, providing guidance in their research and writing process.
 - Collaborate with the professor to create academic content and exercises for OOP courses, focusing on fundamental programming concepts such as classes, objects, constructors and control structures.
- Embedded Software Engineer** Freiburg, Germany
Goodbot May 2023 – Jan. 2024
 - Integrated hardware and software for lab robotics using Arduino, ESP32 and demonstrated proficiency in microcontroller programming with C and Python.
 - Developed electrical schematics with KiCAD, assembled PCBs and conducted SMD soldering and circuit debugging.
 - Assisted in critical CAD designs for robotic components, focusing on optimizing manufacturability and efficiency in 3D modeling and prototyping.
 - Led IPX2 compliance efforts for lab robotics, including sourcing sealing materials and establishing testing protocols to meet international waterproofing standards, enhancing product reliability in moist environments.
- Micropelt** Umkirch, Germany
Assembly Specialist Sep. 2021 – Mar. 2023
 - Managed radiator valve production and enhanced assembly line efficiency using lean manufacturing principles.
- Mahindra Accelo** Pune, India
Maintenance Engineer Trainee Oct. 2019 – Sep. 2020
 - Specialized in maintaining and repairing Servo Press machinery with a focus on hydraulic and pneumatic systems.
 - Developed a Customer-Relation Management Portal using ASP.NET MVC, streamlining invoice and transaction management and integrating Python-based analytics for enhanced operational oversight and optimization.
- Idealake** Mumbai, India
Software Developer Trainee Jul. 2019 – Sep. 2019
 - Developed financial web applications using .NET Framework with a focus on MVC architecture and WCF services integration.

EDUCATION

- Albert Ludwigs Universität Freiburg** Freiburg, Germany
Master of Science in Embedded Systems Engineering, Specialization: Artificial Intelligence Oct. 2020 – Mar. 2024
 - Master's Thesis: Refining Robotic Motions for Visual Servoing with Long-Horizon Tasks:** Focused on implementing one-shot imitation learning for long-horizon tasks using SAM and developing algorithms to reduce unnecessary movements of the UR3-Robot.
- University of Mumbai** Mumbai, India
Bachelor of Engineering in Electronics Jul. 2014 – Jun. 2018
 - Bachelor's Thesis: Grid-Synchronized Solar Micro Inverter System:** Developed a solar power system with embedded control for grid synchronization and power optimization.

PROJECTS

- Disaster Risk Management Using Satellite Imagery:** Developed a flood detection model using TensorFlow and Sentinel-1 imagery for disaster response applications, further deploying it on the NVIDIA Triton Server.
- Advanced Object Detection and Image Generation with Deep Learning:** Utilized Python and OpenCV to implement Single-Shot Detection in video analysis and leveraged Generative Adversarial Networks (GANs) to create photorealistic image synthesis.
- Computer Vision Model for Vehicle Classification:** Designed a custom convolutional neural network using TensorFlow, applying feature matching and data augmentation to improve vehicle classification accuracy.
- Data-Driven Predictive Modeling for Wine Quality and House Pricing:** Developed and optimized predictive models using deep learning and random forests with TensorFlow, numpy, sklearn and pandas, focusing on data engineering techniques for preprocessing, pipe-lining, regularization and feature selection to accurately assess wine quality and predict house prices with minimized validation errors.

TECHNICAL SKILLS

- **Programming Languages:** Python, C, C++, C#, R, HTML, CSS, JavaScript, MATLAB, SQL
- **Frameworks & Technologies:** PyTorch, TensorFlow, MLFlow, Scikit-Learn, Pipelines, OpenCV, Git, Docker, Kubernetes, Jenkins, Streamlit, ROS, .NET, Windows Forms
- **Electronic Systems & Protocols:** Arduino, ESP32, ARM, KiCAD, SPI, I2C, UART, CAN, LT Spice
- **Softwares:** Microsoft Office Suite, LaTeX, CAD/OnShape, PhotoShop, DaVinci Resolve

CERTIFICATIONS

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| ● Pandas (Kaggle) | <i>Apr. 2024</i> |
| ● Intermediate Machine Learning (Kaggle) | <i>Jan. 2024</i> |
| ● Deep Learning and Computer Vision A-Z: OpenCV, SSD & GANs (Udemy) | <i>Mar. 2023</i> |
| ● Computer Vision (Kaggle) | <i>Jan. 2023</i> |
| ● Microsoft Technology Associate: Software Development Fundamentals | <i>Aug. 2016</i> |

ADDITIONAL INFORMATION

- **Hobbies:** Anime & Manga, Calisthenics, Cricket, Swimming, Cooking, Sketching