Ameya Wagh

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google scholar https://goo.gl/BohuxC

ABOUT ME

I am a seasoned roboticist with over 7 years of experience in real-time computer vision, machine learning, and robotics. My expertise spans across autonomous systems including passenger vehicles, trucks, and advanced humanoid robots such as Boston Dynamics' ATLAS. With a strong research background in robotics and computer vision, I have a proven track record of publishing in leading journals and conferences. My research focuses on advancing 3D object detection, semantic reasoning, and scene reconstruction, addressing complex challenges in perception for autonomous systems.

EXPERIENCE

Staff Machine Learning Software Engineer, Perception Feb 2026 – Present
Rivian Automotive LLC, PaloAlto, CA, USA

- Leading the Occupancy and 3D reconstruction efforts.

Sr Machine Learning Software Engineer, Perception Apr 2022 – Feb 2026
Rivian Automotive LLC, PaloAlto, CA, USA

- Part of the core onboard ML model development team for Rivian's ADAS and Autonomous Driving technology. This product is shipped with every rivian vehicle.
- Leading effort for developing 3D occupancy prediction for on-board BEV multi-task neural network model.
- Leading effort to develop offline 3D scene reconstruction systems.
- Designed ML data representation schema and developed compiler stages for generating and augmenting autonomous driving datasets.

Software Engineer, Autonomy June 2019 - Mar 2022
Torc Robotics, Blacksburg, VA, USA

- Developed a camera based **lane positioning system** for autonomous trucks with centimeter level accuracy, which reduced lane bias disengagements across fleet.
- Contributed to the development of **scene segmentation** for online semantic map and **long range lane line detection**.
- Was a part of a special team of 10 to develop perception solutions for geo-fenced passenger car. Improved the **dynamic occupancy grid tracker** and implemented real-time semantic point cloud segmentation for classification measurements.
- Researched and developed POC of **3D point cloud object detection** with a constraint of 100 msec latency.
- Developed a **target-less sensor calibration and validation framework** for camera to lidar calibration with 0.5 deg error tolerance, which was used across the fleet to monitor online camera extrinsics.
- Led designing of an **AUTOSAR** compliant C++ internal libraries for neural network inference and runtime pre/post processing with **CPU, GPU and deep learning accelerator** compatibility.
- Steered the designing and architecting of automated pipelines for training and evaluating models on AWS.

Research Assistant - Computer Vision and Machine Learning May 2018 - May 2019
Worcester Polytechnic Institute, Worcester, MA, USA

- Assisted Prof.Emmanuel Agu on NIH funded diabetic wound analysis project **SMART-WANDS**.
- Contributed in creation of a pressure ulcer wound image dataset, with approx 1300 samples collected by nurses and doctors over a period of 10yrs with different cameras in an uncontrolled setup.
- Developed a semi-supervised pressure ulcer wound image annotation software using **Deep Extreme Cut** Algorithm. Fine tuned by oversampling a small set of hand annotated wound images and achieved mIoU of 0.87. Reduced annotation time from 5 mins to under a minute per sample.
- Published a comparative analysis paper comparing **CNN based approaches** with traditional algorithms like **Associative Hierarchical Random Fields** with different subsets of above dataset.
- Conducted research on best pre-processing policy search algorithms for wound image segmentation using **DeepQ Learning**.

System software engineer July 2016 - June 2017
Eduvance, Mumbai, INDIA

- Designed and implemented automated C/C++ code evaluation frameworks for ARM7/Cortex M4 platforms for the GradeME application. grademe.in/home
- Led a team of 4 in developing IoT micro-services for ARM7 platforms and REST APIs for integration with Eduvance IoT-lab cloud.

EDUCATION

Masters in Robotics Engineering 2019
Worcester Polytechnic Institute, Worcester, USA

- *GPA*: 4.0/4.0
- *Related coursework*: Artificial Intelligence, Computer Vision, Robot Dynamics, Robot Control, Swarm Robotics.
- *MS Thesis:* A Deep 3D Object Pose Estimation Framework for Robots with RGB-D Sensors.

Bachelor Of Engineering in Electronics and Telecommunications 2016
University of Mumbai, Mumbai, India

- *GPA*: 8.19/10.0
- *Related coursework*: Signals and Systems, Random Signal analysis, Embedded systems, Image Processing.
- *Final year Project:* Artificial Intelligence Workplace Assistant.

TECHNICAL SKILLS

Framework and Libraries
PyTorch, Tensorflow, OpenCV, Open-VDB, Eigen, TensorRT, Thrust, Boost, Scikit-learn, ROS-1/2
Hardware Platforms
Nvidia Drive Orin, Nvidia Drive AGX Xavier, Nvidia Drive PX2, Nvidia Jetson nano, x86 (AVX2, AVX512) with Volta GPUs
Programming Languages
Python, C/C++, Java, CUDA-C++

PUBLICATIONS

Journal Papers

- A. Wagh, et.al, “A Comprehensive Comparative Analysis of Convolutional Neural Networks and AHRF Approaches for Semantic Segmentation of Ulcer Images” IEEE Access 8 (10.1109/ACCESS.2020.3014175), 181590 - 181604
- V Jagtap, S Agarwal, A Wagh, M Gennert, “Transportable open-source application program interface and user interface for generic humanoids: TOUGH” International Journal of Advanced Robotic Systems 17 (3), 1729881420921607
- X Zhao, Z Liu, E Agu, A Wagh, et.al, "Fine-Grained Diabetic Wound Depth and Granulation Tissue Amount Assessment Using Bilinear Convolutional Neural Network" IEEE Access 7 (10.1109/ACCESS.2019.2959027), 179151 - 179162

Conference Papers

- S Patil, A Wagh, et.al, "Design and implementation of advanced auto calibrating line following sensor for coloured surfaces with a white line" 2016 IEEE 1st International Conference on Power Electronics, Intelligent Control and Energy Systems (ICPEICES) 2016/7/4
- A Wagh, N Sheth, J Joshi, "Implementation of MOSFETs in a closed loop H-Bridge motor driver using charge pumps" in 2015 Annual IEEE India Conference (INDICON) 2015/12/17
- A Wagh, Z Dave, G Singh, V Dange, A Tambe, S Gengaje, "A low cost portable oscilloscope for educational platforms using a Programmable System on Chip" 2014 International Conference on Advances in Communication and Computing Technologies (ICACACT 2014) 2014/8/10
- A Shinde, A Wagh, A Bhopale, O Ghone, A Harsola, "Intelligent Workplace Assistant" International Journal of Soft Computing And Artificial Intelligence (IJSCAI) , pp. 80-83, Volume-3,Issue-2

Patents

- "SYSTEMS AND METHODS FOR HIGH PRECISION LANE-KEEPING BY AUTONOMOUS VEHICLES", US Patent: US12509074B2, 2025

Thesis

- A Wagh, "MS Thesis: A Deep 3D Object Pose Estimation Framework for Robots with RGB-D Sensors" Worcester Polytechnic Institute.

PROFESSIONAL SERVICES

Conference Reviewer

open review

- NeurIPS-Ixai - [2024]
- ML4H - [2024]
- AAAI - [2024, 2025]
- ICLR-FMWild - [2025]
- ICCV-WiCV - [2025]
- AAMAS-AI4CNI - [2026]
- AIAI - [2026]

Journal Reviewer

- IEEE-ACCESS -[2025-present]

Working Group

- IEEE Standard Association P1955 - [2024-2027] Part of the IEEE Standard Working Group P1955 developing IEEE standards for 6GRobo.

OPEN-SOURCE CONTRIBUTIONS

TOUGH: Transportable Open-Source UI for Generic Humanoids

- A library of algorithms for Humanoid Robot Perception, Localization and Planning.
- github.com/WPI-Humanoid-Robotics-Lab/tough

LLama2.cpp: A standalone C++library for llama2 LLM inference

- Developed a C++ library for tensors and linear algebra.
- Developed a C++ library for Transformer inference.
- Implemented a framework for llama2 FP32 and Int8 inference.
- github.com/AmeyaWagh/llama2.cpp

NOTABLE AWARDS

- Tata Consultancy Services Best student Project Award for "The Artificial Intelligence based Workplace assistant".

REFERENCES

References available upon request.