Pratik Phadte

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Education

University of Twente, MSc in Embedded Systems — Sept 2024 – Present

- GPA: 7.6/10 (Results Link)
- **Coursework:** Embedded Computer Architecture, Systems Engineering, Image Processing and Computer Vision, Embedded Artificial Intelligence, Robot Perception, Cognition, and Navigation, Deep Learning, Real-time Systems 1, Data Science - Computer Vision Theme, Advanced Software Development for Robotics, Embedded Systems Laboratory, Security Services for the Internet of Things, AI for Autonomous Robots: Deep Learning and Reinforcement Learning, Aerial Robotics

Goa University, Bachelor of Engineering in Electrical and Electronics — Aug 2017 – July 2021

- GPA: 9/10 (Results Link)
- **Final Year Project:** Demand Response Controller for Scheduling Residential Energy Load (Project Link)

Projects

Software-Hardware Co-Designed CNN Model on KV260 SoM Edge Device — GitHub Link - 0 Stars

- Concepts Implemented: INT8 Quantization, Data Augmentation, Batch Normalization, Max Pooling, Regularizers - Learning Rate Reduction
- Tools Used: Python, Xilinx Vitis-AI 2022

Image Processing and Computer Vision for Man Overboard Detection — GitHub Link - 1 Star

- Concepts Implemented: Fourier Transform, Image Convolution with Various Kernels, Camera Calibration, Edge Detection - Canny, Template Matching, Optical Flow for Video Stabilization
- Tools Used: Python

Deep Learning Project: White & Black Box Attack on BERT LLM — GitHub Link - 0 Stars

- Concepts Implemented: Loss Function Design, Transfer Learning
- Tools Used: Python

ESP32 Flight Controller for Quadrotor — GitHub Link - 186 Stars

- Concepts Implemented: Microcontroller Interrupts, Cascaded PID Controller, Complementary Filters
- Tools Used: C++, PCB Design Software

ROS2 Humble IP Camera Feed Package — GitHub Link - 8 Stars

- Package for ROS2 Humble to create video footage nodes from IP address, USB webcam, or webcam as ROS2 topics
- Tools Used: C++, Python, MicroROS

Ball Tracking ROS2 Package - Forked from JoshNewans — GitHub Link - 4 Stars

- Package for ROS2 Humble to track a ball with a mobile robot via a camera feed, modified to improve latency by adjusting the Quality of Service profile
- Tools Used: C++, Python

YouTube Channel — Channel Link - 4400+ Subscribers

- I upload robotics educational content; one of my popular videos gathered 235,000+ views (Video Link)
- Tools Used: iMovie

Experience

Project Associate, CARES, Government of Goa – Panjim, India — June 2023 – March 2024

- Responsible for R&D efforts focused on developing a quadcopter flight controller using low-computation chipsets

- Developed block-based visual microcontroller programming software, making it easier for young learners to program microcontrollers using blocks

Assistant Manager - Electrical & Instrumentation, Vedanta Resources – Amona, India — October 2021 – June 2023

- Responsible for electrical maintenance, ensuring human safety, and overseeing project commissioning in the electrical and instrumentation department of a 0.95 MTPA pig iron blast furnace plant
- Conducted root cause analysis for machine/system failures in electrical systems
- Led predictive maintenance projects for high-load machinery—including transformers and motors—using vibration, thermal, and acoustic data analysis
- Reviewed specifications and electrical Single Line Diagrams for 11kV, 415V electrical panels, EOT cranes, high-tension motors, and low-tension motors from vendors; modified scope and bill of materials through continuous vendor communication and cross-department meetings, finalizing offers worth up to $50,000

Intern, Earnestek Pvt Ltd – Ponda, India — June 2019 – July 2019

- Developed Convolutional Neural Networks for classification using the CIFAR-10 dataset and MNIST Fashion dataset

Skills

Publications

Implementation of Load Scheduling and Demand Response for Residential Consumers — Jan 2022

Jayesh Priolkar, Pratik Phadte, Aaron Gracias, E.S. Sreeraj

10.1109/NPEC52100.2021.9672467

Achievements

Runner-Up, National Innovation Challenge & Hackathon — April 2021

Designed a Residential Load Controller featuring a demand response algorithm and peak load scheduling algorithms, aimed at providing financial support to utility companies and ensuring consistent and reliable electricity for consumers. The project also included the development of a smart home automation system for enhanced accessibility. Recognized with a cash prize of $590.

Qualified GATE 2024 Data Science & Artificial Intelligence — February 2024

The GATE (Graduate Aptitude Test in Engineering) is a national exam in India, primarily used for admission to postgraduate programs (Master's and Ph.D.) in engineering, technology, and science at top Indian institutes like the IITs and IISc. GATE tests a candidate's understanding of undergraduate-level engineering and science subjects.