GAURAV GAONKAR

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Education

Brown University	Aug 2023 – Expected May 2025

Master of Science in Computer Science (Cumulative GPA: 4.0/4.0) — *Rhode Island, USA*

Courses: Computer Systems; Parallel Computing in Heterogeneous Systems; Deep Learning; Reinforcement Learning; Robotics
Teaching Assistant: CS2470 Deep Learning; **CS1430** Computer Vision

University of Mumbai	Aug 2019 – May 2023

Bachelor of Engineering in Computer Engineering(Cumulative GPA: 3.94 / 4.0) — *Mumbai, India*

Relevant Courses: Data Structures, Analysis of Algorithms, DBMS, Distributed Systems, OS, Software Engineering.

Work Experience

Aarki Inc. San Francisco, CA, USA | Machine Learning Engineer Intern — May. 2024 – Sept. 2024

- o Optimized stable diffusion model for display ad generation, improving animated ad retention by 10% [study].
- o Developed an exploration strategy by analyzing user profiles and feature-engineering transient user behavior into the model training pipeline, resulting in improved ROAS by winning high-value purchasers.
- o Gained insights into ML model deployment across ad-tech stages through collaboration with MLOps team.

Serre Lab, Brown University, USA | Graduate Research Assistant — Sep. 2023 – Present

- o Trained and optimized Vision Transformer model for classifying extant leaf fossils into closest families. Implemented model explainability (CRAFT) revealing different strategies used by the model for classifying unknown fossils into closest families.
- o Evaluated computer vision models (**Dinov2, CLIP, Vision Transformer, GANs, Stable Diffusion**) for 3D properties like depth and surface normals [contributed paper].

RagaAI, Bengaluru, India | Computer Vision Engineer Intern — Jan. 2022 – April 2022

- o Developed a Generative Adversarial Network for image and video drift detection, revealing aberrant changes in the predictions of large-scale vision models with an accuracy of **85%**.
- o Develop 10+ quality assessment metrics for Computer Vision models on object detection tasks, revealing model inefficiencies in learning strategy, data leakage, and biases towards a particular object or category.

Ola Electric Mobility, Bengaluru, India | Research Engineer Intern — Jul. 2021 – Dec. 2021

- o Led the development of the Vehicle Tire Damage Detection use case, managing data collection, model training, and calibration to ensure accurate and reliable results.
- o Designed classical vision approach to work with limited training samples, achieving a test accuracy of **82%**.
- o **Deployed** fine-tuned model on large-scale production application in OLA vehicle maintenance division, saving expense by **60%**.

Selected Projects

LOCNET: Does Depth Density Estimation Enhance Shape Bias in CNNs? – *Object Segmentation* [Github Link] **May 2024**

- o Jointly optimized Resnet50 for object classification and depth estimation, increasing the model's shape bias.
- o New model resulted in a 13% improvement in out-of-distribution classification accuracy.

Content based Scientific Paper Recommendation | *Graph Neural Network, Content Filtering* [Github Link] **January 2023**

- o Created an end-to-end graph-based scientific paper recommendation web application using the Django Python framework.
- o Designed an optimized training pipeline for graph edge prediction to link identical nodes/papers, achieving 86% test accuracy.

Web App for Scientific Resources Lending | *Smart India Hackathon Finalist* | *Full Stack Developer* [Github Link] **Sept 2022**

- o Developed an E-Commerce platform for renting scientific instruments across technical institutions.
- o Worked on System design and backend development of the application using Django, and Postgresql database.

Research Papers and Patents

- o **The 3D-PC: a benchmark for visual perspective taking in humans and machines.** *[Paper] (ICLR 2025 Pending)*
- o **Gradient Boosting Approach for Traffic Flow Prediction using CAT Boost** published in IEEE ICAC3 2021. *[Paper]*
- o **Swift Medical Report Analysis using Computer Vision (SMRA-CV)** published in the journal IJRET *[Paper]*

Technical Skills

Programming Languages: C, C++, Python, OpenMP, MPI, Cuda, SQL.
Machine Learning: Numpy, Sklearn, Pandas, MATLAB, Pytorch, Torch XLA, Tensorflow and Keras.
Web-development: HTML, CSS, Django, Flask, Nodejs, Relational and Non-Relational Databases, Agile Development, Git
Databases: MySQL, PostgreSQL, Redash and ClickHouse.