

Avinash Prabhu Puppala

Seeking SWE internship opportunities for Summer 2023

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EDUCATION

Georgia Institute of Technology Aug. 2022 - May 2024 (*expected*)
MS in Computer Science (ML Specialization), TA for Perception and Robotics 4.0/4.0

IIIT-Hyderabad Jul. 2018 - Jul. 2022
B. Tech (Honors) in ECE, Dean's List for Academic Excellence, TA for Computer Vision & IoT GPA: 8.74/10

TECHNICAL SKILLS

Programming Languages: C, C++, Python, SQL, HTML, CSS, Javascript, Matlab, C#, Bash, Racket

Tools: Pytorch, MERN Stack, Keras, Numpy, Pandas, Matplotlib, OpenCV, ROS, Git, Blender, Unity, Linux, Latex

COURSEWORK

Computer Science: Data Structures, Algorithms, Networks, OS, Compilers, Processor Architecture

ML: Computer Vision, Image Processing, Statistical Methods in AI, Machine Learning, Knowledge based AI, Robotics

Mathematics: Applied Optimization, Probability and Random Processes, Linear Algebra

EXPERIENCE

Robotics Research Center, IIIT-Hyderabad | *Computer Vision, Robotics*

Research Assistant

Sept. 2019 - Jul. 2022

- Developed a novel **Convolutional Neural Network** to 3D reconstruct scenes from a single image using **Python & Pytorch**.
- Developed a **domain-randomized** synthetic data generation pipeline for **Sim2Real** transfer using **C#, Unity** and **Blender**.
Publication.

Robert Bosch | *Computer Vision*

Computer Vision Intern

May 2021 - Aug. 2021

- Augmented real-world LiDAR datasets using synthetic models, improving performance of 3D object detection networks (**PointPillars**) by **53%** on difficult to obtain real-world data.

Precog Lab, IIIT-Hyderabad | *AI for Social Computing*

Research Assistant

Jan. 2021 - Jul. 2022

- Used **SMOTE**, **SHAP values**, ML models such as **XGB Classifier**, **RFC**, **LGBM** and **DNNs** on Twitter data to differentiate and study different classes of users. *Publication 1, Publication 2.*
- Analysed inequities in India's COVID-19 vaccination drive using statistical tools such as **Pearson Correlation**, **Spatial Regression** and **Regression Discontinuity in Time**. *Technical Report.*

SELECTED PROJECTS

Online Shopping WebApp | *Web Development, MERN stack*

- Developed a website with separate buyer and seller interfaces. Implemented features to view order status, display and buy products, and provide seller reviews.

COVID-19 Detection from XRay images | *Computer Vision, Pytorch, Python*

- Designed a custom classifier on top of the pre-trained feature extractor from **VGG16** to detect XRays having COVID-19.
- Extended the model to include **multi-modal** data and improved the F1 score by 10%.

Super Mario Bros Game | *OOP, Python*

- Developed a Linux terminal-based game similar to Super Mario with obstacles and powerups using OOPs concepts.

Linux Shell | *Bash, C*

- Implemented a Linux shell, a command line interpreter from scratch in C. Supports all basic commands along with redirection and piping.

Multi-threaded Web Server | *Operating Systems, Web Sockets, C*

- Implemented a multi-threaded web server in C. Wrote a custom **Ruby** script to make multiple HTTP requests to the server. Handled the requests using the **socket** library.
- Studied the effect of **scheduling algorithms** and **number of threads** used on the turnaround & response time of the server.

Classical Computer Vision algorithms | *Computer Vision, Python*

- Grabcut for image segmentation** - Implemented the GMM, energy model and minimization algorithms from scratch.
- Viola Jones for face detection** - Implemented the Haar features, integral image and the adaboost algorithm from scratch.
- Seam Carving for image resizing** - Calculated the energy map & used DP to remove the seam with lowest energy.

SELECTED PUBLICATIONS

Monocular Multi-Layer Layout Estimation for Warehouse Racks	Computer Vision	ICVGIP 2021
"I'll be back": Examining Restored Accounts On Twitter	AI, Social Media	WI-IAT 2021
Efficient Rep. of Interaction Patterns with HypHC for Classification of Users on Twitter	AI, Social Media	WI-IAT 2021