

Shubham Gupta

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EDUCATION

New York University

New York City, US

Master of Science in Computer Engineering — GPA: 3.67/4.0

May 2024

- Working under the supervision of **Dr. Chen Feng** at **AI4CE**.

PES University

Bangalore, India

Bachelor of Technology in Computer Science and Engineering — GPA: 8.39/10.0

May 2022

- Thesis project advised by **Dr. Natarajan S**.

PUBLICATIONS

- "Analysis and application of multispectral data for water segmentation using machine learning."** (CVMI 2022). Analyzed the performance of eight machine learning classification algorithms on multispectral data provided by Sentinel-2. Empirically demonstrated Short wave infrared bands are best suited for water body segmentation. [\[preprint\]](#) [\[code\]](#) [\[publication\]](#)
- "WSSL: Weighted Self-Supervised Learning Framework for Image-Inpainting."** (CGVCVIP 2022). Demonstrated a novel technique for image inpainting with using self supervised learning achieving competitive results with supervised learning models. The technique uses a combination of weighted pretraining tasks and the downstream loss function uses a weighted sum of reconstruction loss and perceptual loss leading to superior results. [\[preprint\]](#) [\[code\]](#) [\[publication\]](#)

TECHNICAL SKILLS

Languages: Python3, C++, Java

Databases: MySQL, Firebase

Frameworks: SpringBoot, Flutter, Hadoop

Libraries: PyTorch, OpenCV, Scikit-learn

Applications: HPC, AWS, GCP, Docker, QGIS, Github

EXPERIENCE

NYU Courant Institute

February 2023 – Present

Climate Modeling Research Assistant — Advisor: **Dr. Laure Zanna**

New York City, USA

- Updated and restructured Machine Learning content in **L96_demo** to make concepts more beginner friendly.
- Maintaining and updating user experience for the **m2lines** website.

NYU Marron Institute

January 2023 – Present

Urban Transit Research Assistant — Advisor: **Dr. Elif Ensari**

New York City, USA

- Experimented with **Open Vocabulary Semantic Segmentation** models: **X-Decoder** and **Grounded-SAM**, and **ViT-Adapter** to self annotate man-made boundaries from Google Street View data.

NYU Robomaster

September 2022 – Present

Computer Vision Lead - Mentor: **Chris DiMauro**

New York City, USA

- Contributed to finishing 5th in the RoboMasters University League 2023.
- Reduced inference latency by 40% on **YOLOv5** using **TensorRT** deployed on **Jetson (aarch64)** and **x86** devices using **Docker** NGC containers.

Aruba, a Hewlett Packard Enterprise company

January 2022 – July 2022

Software Development Intern - Manager: **Sachin Sanap**

Bangalore, India

- Constructed **SQL** queries and **SpringBoot APIs** to be used for visualizations for customers in production. The APIs provided insights on customer devices and apps usage patterns.
- Usage Dashboard: an internal tool allowing developers to gain insights on the resources used by customers using **Grafana**, **SQL**, **Elasticsearch** and **Python3**.

CBeyond Technologies LLP

November 2021 – June 2022

Founder and CTO

Bangalore, India

- A company to make Computer Vision based SaaS solutions available to the general public.
- FacePass: We aim to provide a face authentication system as an alternative to fingerprint system. Our solution will focus on reducing contact surfaces for a more seamless authentication service.

Center for Cloud Computing and Big Data, PES University

June 2020 – July 2020

Project Intern — Advisor: Dr. K V Subramaniam

Bangalore, India

- Lead a project to track blood glucose levels in type-2 diabetic patients.
- Developed an Android app using **Java**, **Fit Android API**, and **Fit REST API** for monitoring and uploading real time health statistics.
- Provided insights of steps per day, caloric burned and intake using **Google Cloud Platform** and **Firestore**.

Regional Remote Sensing Center - South, ISRO

August 2019 – April 2020

Research Intern — Advisor: Dr. Hebbar R

Bangalore, India

- **Published work** at the international conference of Computer Vision and Machine Intelligence (CVMI 2022).
- Developed a Sentinel-2 multispectral data pipeline using **SnaPy** and **GDAL** that was fully automated requiring **zero human annotation** for water bodies.
- Demonstrated DeeplabV3+ can achieve **0.92 mIoU** on Bengaluru lakes using transfer learning weights of PASCALVOC2012 dataset.

Center for Data Science and Applied Machine Learning, PES University

June 2019 – August 2019

Research Intern — Advisor: Dr. Uma D

Bangalore, India

- Developed a model to monitor open water bodies from aerial drone images using **DeepLabv3+**.
- Won 1st place in one of the three internal hackathons and won 'L2' position for the final project demonstration.
- Recommended to work with scientists at RRSC-S, ISRO.

PROJECTS

Compressed Sensing | *Python3, Numpy, Github, JupyterBook*

2023

- Implement Compressed Sensing on MRI data using **primal dual splitting algorithm** using random and equidistant masks.

Leave Your Clothes Behind | *Python3, HPC, PyTorch, Blender*

2023

- Extract clothes from monocular RGB videos using **SAM** to be used as 3D assets generated by **NeRF2Mesh**.

HONORS AND AWARDS

- Award merit based scholarship at New York University (2022).
- Recipient of the Distinction Award Certificate(SGPA of 7.75 or higher) in Semesters I, II, IV, V, VI, VII, and VIII at PES University.
- Recipient of the MRD scholarship(top 20% of the department) in Semesters V and VI at PES University.
- Member of winning team Collective at the MIT Covid19 Challenge India:Track I (2020).

LICENSES AND CERTIFICATION

- Associate Cloud Engineer by Google Cloud (2021).
- Architecting with Google Compute Engine by Google Cloud - Coursera (2021).
- 30 Days of Google Cloud by Google Cloud (2020).