

# Shubham Gupta

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## EDUCATION

### New York University

New York City, US

Master of Science in Computer Engineering

May 2024

- Research Assistant with the M<sup>2</sup>Lines project advised by Dr. Laure Zanna for climate modeling using machine learning (2023).
- Research Assistant with the IBX project advised by Dr. Elif Ensari for Open Vocabulary Object Detection (2023).

### PES University

Bangalore, India

Bachelor of Technology in Computer Science and Engineering

May 2022

- Teaching Assistant for UE19CS352 Cloud Computing by Dr. Venkatesh Prasad (2022).
- Secured 1<sup>st</sup> place at MIT Covid19 Challenge India: Track I (2020).

## PUBLICATIONS

**Gupta, Shubham**, et al. "Analysis and Application of Multispectral Data for Water Segmentation Using Machine Learning." Computer Vision and Machine Intelligence, Springer Nature Singapore, 2023, pp. 709–718. Crossref, doi:10.1007/978-981-19-7867-8\_56. [\[code\]](#) [\[slides\]](#)

**Gupta, S.**, et al. "WSSL: Weighted Self-Supervised Learning Framework for Image-Inpainting." Proceedings of the International Conferences Computer Graphics, Visualization, Computer Vision and Image Processing, Connected Smart Cities, Big Data Analytics, Data Mining and Computational Intelligence and Theory and Practice in Modern Computing 2022 ., edited by A. Abraham Xiao et al., IADIS Press., 2022, pp. 111–119. [\[code\]](#)

## EXPERIENCE

### NYU Robomaster: Ultraviolet

September 2022 – Present

Computer Vision Lead - Mentor: Chris DiMauro

New York City, USA

- **Leading** a team to develop a detection and tracking solution using **ROS2** and **DeepStream SDK**.
- Reduced inference latency by **40%** on **YOLOv5** using **TensorRT** deployed on **Jetson (aarch64)** and **x86** architecture using **Docker** Nvidia GPU Cloud (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.
- Deployed an internal tool allowing developers to gain insights on the resources used by customers using **Grafana**, **SQL**, **Elasticsearch** and **Python3**.

### Indian Space Research Organization

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. The pipeline was tested on DeeplabV3+ and a custom architecture.

## PROJECTS

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

2023

- 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 RGB videos using **SAM** and **COLMAP** to be used as 3D assets generated by **NeRF2Mesh** .

## TECHNICAL SKILLS

**Languages:** Python3, C++, Java, SQL, Javascript, Shell, Lucene, L<sup>A</sup>T<sub>E</sub>X

**Libraries:** PyTorch, Pytorch3D, Onnx, TensorRT, OpenCV, Scikit-learn, Numpy, Pandas, Numba, PyRealSense2, Flask

**Frameworks:** ROS2, SpringBoot, Flutter, Hadoop, Elasticsearch, Jekyll, Hugo

**Applications:** HPC, AWS, GCP, Docker, Grafana, QGIS, Github, Firebase Postman, Adobe Lightroom, Blender

**Certifications:** Associate Cloud Engineer, Architecting with Google Compute Engine, 30 Days of Google Cloud

## LEADERSHIP

**Computer Vision Lead:** Responsible for a interdisciplinary team of fifteen to train, optimize and deliver a detection and tracking solution at NYU Robomasters. Our solution helped secure 5<sup>th</sup> place in the RoboMasters University League 2023 against twenty teams from USA, Singapore and Japan.

**Head of Android Development:** Responsible for conducting and planning events on behalf of Google Developer Student Clubs: PES University chapter. Responsible to deliver the Android Study Jams (2021) which received over a 1000 unique views.

**Founder:** Started CBeyond Technologies LLP (2021) to develop cloud based vision solutions.