

Shubham Gupta

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CS graduate with 1 year of software development and 2 years of Computer Vision research experience.

EXPERIENCE

ULTRAVIOLET, NYU | COMPUTER VISION LEAD

Sep 2022 - Present | 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 and x86 devices using Docker NGC containers.
- Responsible for managing and delegating tasks to the vision team.

NYU COURANT | CLIMATE MODELING RESEARCH ASSISTANT

Feb 2023 - Present | New York City, USA

- Responsible for developing the Intro to Machine Learning and Feature importance notebooks from scratch.
- Contributed to cleaning up and optimizing notebooks on L96Demo.

NYU MARRON | URBAN TRANSIT RESEARCH ASSISTANT

Jan 2023 - Aug 2023 | 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.

HP (ENTERPRISE) | SOFTWARE ENGINEER INTERN

Jan 2022 - Jul 2022 | Bengaluru, India | Certification

- Constructed SQL queries and SpringBoot APIs to be used by visualizations in production. The APIs provided insights on customer devices and apps.
- Refactored an internal API tool by cutting down on graphic components for a cleaner user interface using AngularJS and Flask.

INDIAN SPACE RESEARCH ORGANIZATION | RESEARCH

Jul 2019 - Apr 2020 | RRSC-S, ISRO, Bengaluru, India | Certification

- 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.

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]

PROJECTS

COMPRESSED SENSING | Python3 | 2023

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

LEAVE YOUR CLOTHES BEHIND | Python3, PyTorch, HPC | 2023

- Extract clothes from monocular RGB videos to be used as 3D assets using TorchNGP.

EDUCATION

NEW YORK UNIVERSITY

MASTERS IN COMPUTER

ENGINEERING

GPA: 3.67 / 4.0

May 2024 | New York City, USA

PES UNIVERSITY

B.TECH IN COMPUTER SCIENCE

AND ENGINEERING,

GPA: 8.39 / 10.0

May 2022 | Bengaluru, India

LINKS

Portfolio:// iamshubhamgupto

LinkedIn:// shubhamgupto

Github:// iamshubhamgupto

Google Scholar:// shubhamgupta

SKILLS

PROFICIENT

C++ • Python 3 • Java • shell
Numpy • Pandas • h5py
Numba • PyTorch • scikit-learn
MySQL • SpringBoot • ElasticSearch
Docker • Kubernetes • Github

FAMILIAR

Jenkins • Grafana • Javascript
Flutter • Trivvy • Hadoop

SOFTWARE

Jupyter • QGIS • SNAP • MS Office

COURSEWORK

GRADUATE

Scientific Software Engineering
Image & Video Processing • Deep
Learning • Real Time Embedded
Systems

UNDERGRADUATE

Data Structures • Design Patterns
Design and Analysis of Algorithms
Advanced Algorithms
Graph theory • Cloud Computing
Performance Engineering
Intro to Data Science • R

TEACHING

CLOUD COMPUTING

Spring 2022, PES University

- Created slides and lab manuals for Kubernetes and Amazon DynamoDB.
- Created **problem statements** for lab finals and evaluated submissions.

CERTIFICATIONS

Associate Cloud Engineer

Architecting with Google Compute Engine