Shubham Gupta

sg7761@nyu.edu | +1 9176032850 | Start date: June 10, 2024

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 5^{th} in the RoboMasters University League 2023.
- Reduced inference latency by **40%** on **YOLOv5** using **TensorRT** deployed on **Jetson** 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 - Present | New York City, USA

- Currently building a labelling and analysis pipeline using X-Decoder that will automatically classify boundary presence, porosity and height.
- Contributed to a labelled dataset from Google Street View images.

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 Python and GDAL that was fully automated requiring zero human annotation for water bodies.
- Demonstrated DeeplabV3+ can achieve 0.92mIoU 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.

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 • R • shell
Numpy • Pandas • h5py
Tensorflow • 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
Machine Learning • Deep Learning

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