Shubham Gupta

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Proactive software engineer experienced in the design to deployment of machine learning models, leveraging containers for optimal integration with server and mobile compute systems. Seeking roles to further innovate and leverage my expertise.

EDUCATION

New York University   New York City, US
Master of Science in Computer Engineering   *May 2024*

- Research Assistant with the M^{2}Lines project advised by Dr. Laure Zanna for climate modeling and web development (2023).
- Research Assistant with the IBX project advised by Dr. Elif Ensari for Open Vocabulary Object Detection (2023).
- Coursework: Deep Learning, Robot Perception, Real Time Embedded Systems, Scientific Computing, Internet Protocols

PES University   Bangalore, India
Bachelor of Technology in Computer Science and Engineering   *May 2022*

- Secured 1st place at MIT Covid19 Challenge India: Track I. • Teaching Assistant for UE19CS352 Cloud Computing (2022).
- Coursework: Data Structures and Algorithms, Advanced Algorithms, Design Patterns, Cloud Computing, Compiler Design, Operating Systems, Software Engineering, Performance Engineering, Computer Networking

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]

EXPERIENCE

NYU Robomaster: Ultraviolet   New York City, US
Computer Vision Lead - Mentor: Chris DiMauro   *September 2022 – Present*

- **Leading** an interdisciplinary team of fifteen to train, optimize and deliver a detection and tracking solution.
- Secured 5th position in RoboMasters University League 2023, against twenty teams from USA, Singapore, and Japan.
- Cut YOLOv5 inference latency by 40% using **TensorRT** on Jetson (aarch64) and x86, deploying in Docker NGC containers.

Aruba, a Hewlett Packard Enterprise company   Bangalore, India
Software Development Intern - Manager: Sachin Sanap   *January 2022 – July 2022*

- Developed **SQL** queries and **SpringBoot** APIs for customer device and app usage insights in production.
- Created a tool for developers to visualize customer resource statistics using **Grafana**, SQL, **Elasticsearch**, and **Python3**.

Indian Space Research Organization   Bangalore, India
Research Intern — Advisor: Dr. Hebbar R   *August 2019 – April 2020*

- **Published work** at the international conference of Computer Vision and Machine Intelligence (CVMI 2022).
- Demonstrated an automated Sentinel-2 data pipeline with **SnaPy** and **GDAL** for water body detection, **eliminating** manual annotation. Tested on DeeplabV3+ and a custom architecture for near real time water segmentation.

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, LaTeX
Libraries: PyTorch, Pytorch3D, Onnx, TensorRT, OpenCV, Scikit-learn, Numpy, Pandas, Numba, PyRealSense2, Flask, FFmpeg
Frameworks: ROS2, SpringBoot, Flutter, Hadoop, Elasticsearch, Jekyll, Hugo, Jenkins, Kubernetes, CUDA
Applications: HPC, AWS, GCP, Docker, Grafana, QGIS, Github, Jira, Confluence, Firebase Postman, Adobe Lightroom, Blender
Certifications: Associate Cloud Engineer, Architecting with Google Compute Engine, 30 Days of Google Cloud

LEADERSHIP

Computer Vision Lead: Lead the Vision team and manage task delegation. Organized workshops for NYU Robomaster on Git, environment setup and team goals. Mentoring one senior design project to develop a detection and tracking pipeline in C++.

Head of Android Development: Organized and led events for Google Developer Student Clubs: PES University chapter. Hosted Android Study Jams (2021) which introduced Android development using Kotlin and attracted over a 1000 unique views.

Founder: Started CBeyond Technologies LLP (2021) to develop a contactless cloud based authentication solution for our building abiding COVID regulations.