

SAIM RAZA

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TECHNICAL SKILLS

Languages: Python, JAVA, JavaScript, C++, HTML, CSS, Bash, Tcl, MATLAB (Expert in **Core Python**)

Tools & Frameworks: Google Cloud Platform (GCP), AWS, Docker, Kubernetes, Terraform, Elasticsearch, MongoDB, Django, Flask, ReactJS, NodeJS, MongoDB, Express.js, Pandas, NumPy, Linux, Git, PyTest, BigQuery, BigTable, DynamoDB, NginX, Apache, InfluxDB, Grafana

WORK EXPERIENCE



National Aeronautics and Space Administration (NASA)

New York, USA

Software Engineering Intern

Oct 2022 – Dec 2022

- Assist with **data engineering tasks** for a research project jointly conducted at **NYU** and Lamont Doherty Earth Observatory at **Columbia University**
- Extract data from **high-resolution numerical ocean simulations** stored on a **NASA supercomputer**, transforming them to the **cloud-optimized Zarr format**, and transferring the data off the supercomputer into **AWS cloud storage** for data science and machine learning workflows.



LiveRamp

New York, USA

Senior Software Engineering Intern

May 2022 – Aug 2022

- Developed and deployed staging/production CI/CD pipelines on **Google Cloud Platform (GCP)** using **Jenkins, Spinnaker, Terraform, GitHub**
- Wrote a **Django** app and scripts in **Ruby/Python** to help ingest **80+ PBs of data** from **billions of requests** per day
- Reduced the issue resolution time by 50% by automatically finding assignees for **JIRA** issues using a **machine learning** model (Google Cloud AI)



The D. E. Shaw Group

Hyderabad, India

Tech Lead - Front Office R&D - Python Infrastructure

Jan 2021 - Aug 2021

- PyCon India 2020:** delivered a talk on **Parallel Computing and Serialization** (Pickling) ([YouTube link](#))
- Python3 Migration:** led a **team of 4 developers** to migrate **~30 repositories** containing **~2.5 millions of lines of code** from Python 2.7 to 3.8 to reduce the technical debt of multi-millions dollars
- Exotic Pickling:** wrote a library for serialization of 'exotic' Python objects like lambdas and user-defined classes. The library performed 100x better than open-source solutions like the dill and cloudpickle



The D. E. Shaw Group

Hyderabad, India

Senior Software Engineer

July 2018 - Dec 2020

- Wrote a library to synchronize **parallel execution of 100s** of Python processes and threads based on atomic NFS file lock
- Maintained infrastructure of **4 caching and analytical libraries** for **16 quantitative and discretionary trading teams** across the firm
- Reduced developments time by 40%** by developing a **proprietary web-framework** to quickly turn Python callables into REST end-points
- Improved load handling of the proprietary web-framework by 400%** by adding support for **ASGI** (Asynchronous Server Gateway Interface)
- Designed a **speed-test framework** used for **regression testing of 1000s of libraires and unit tests** across the firm.



The D. E. Shaw Group

Hyderabad, India

Software Engineer

July 2016 - June 2018

- Improved the **performance of the non-linear optimizer by 70%** by leading the deployment, testing and purchase of the library **HSL for IPOPT**
- Reduced technical debt by \$3 million** by migrated a data analytics engine to Python/C++
- Improved the latency, scalability and availability by 2x** by employing primary-secondary architecture and employing an in-memory database
- Improved the performance of a **Python testing framework by 10x** using multi-processing and distributed computing across node cluster



Defence Research and Development Organisation (DRDO)

New Delhi, India

Research Assistant

Jun 2015 – May 2016

- Spearheaded a **novel computer vision algorithm** for **object tracking in videos** which **outperformed 8 state-of-art algorithms** and achieved **mean-center location error of 6.791** and **F-measure of 0.78**. We fused 4 visual cues and used context-sensitive reliability to achieve high accuracy
- Research Publication:** Walia, G.S.; Raza, S.; Gupta, A.; Asthana, R.; Singh, K. [A novel approach of multi-stage tracking for precise localization of target in video sequences](#). Expert Systems with Applications (ESWAA) Int. J. 2017, 78, 208–224 (Impact Factor – 4.292)

EDUCATION



New York University (NYU), Courant Institute of Mathematical Sciences, NY, USA

Sep 2021 – May 2023

Master of Science in Computer Science

GPA: 3.83/4



Delhi Technological University, Delhi, India

Jul 2012 - May 2016

Bachelor of Technology in Mathematics & Computing Engineering

GPA: 8/10

COURSEWORK:

Data Structure and Algorithms, Operating Systems, Database Management Systems, Object Oriented Programming, Data Communication & Networks, Programming Languages, Data Analytics and Visualization in Healthcare, DevOps and Agile Methodologies

AWARDS

- Best Paper Award, 2018** in the Department of Applied Mathematics at Delhi Technological University.
- Won second prize in the hackathon High On Code, 2017 and 2018 at DE Shaw & Co

Open Source Contributions/Other Projects

- Jeevan Stambh Foundation** – developer and maintainer of the website of the charitable NGO working in various areas of relief management
- Pyflyby:** actively worked on bug-fixes, improvements, and releases to Pypi.
- HotImports Plugin for PyCharm:** enables automatic imports while writing Python code (implemented in Java).
- Scalable web-scraping app:** a Flask/Gunicorn/Redis based deployed on Heroku to scrap a given URL and show the frequency of words.

Fun Facts : Won **Mr. Fresher 2012** title of DTU among **1600 students** | **Black Belt in Taekwondo**, World Taekwondo Federation, South Korea.