ADITYA SHRIVASTAVA

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EDUCATION

Arizona State University   **Tempe, Arizona**
Master of Science in Computer Science   *August 2022 - May 2024 (Expected)*

Institute of Technology, Nirma University   **Ahmadabad, India**
Bachelor of Technology in Information Technology   *July 2017 - June 2021*
Courses: *Operating Systems, Data Structures, Analysis of Algorithms, Artificial Intelligence, Machine Learning, Networking, Databases*

EXPERIENCE

ASU Decision Theater Network   **Tempe, Arizona**
Data Analyst   *Jan 2023 - Present*
- Constructed LLM pipeline on BERT model to predict and rank relevant publications given a query research problem.
- Created end-to-end ETL pipelines to generate reporting models/views and optimize the data flow efficiency.

Arizona State University - Kerner Lab   **Tempe, Arizona**
Graduate Services Assistant   *August 2022 - December 2022*
- Worked on the Street2Sat project. Created image processing pipeline with YOLOv5 to stream classified, segmented and georeferenced image data from African regions to satellites. Developed a website in Flask to interact with the pipeline.
- Leveraged Google Cloud's VertexAI platform to manage labeling tasks and develop high-volume satellite imagery datasets.

Epoch BioDesign Ltd.   **London, United Kingdom**
Machine Learning Engineer   *July 2021 - July 2022*
- Implemented ProtBERT, ESM-1b and Bigbird models using PyTorch for improved enzyme mutation discovery task.
- Deployed CI/CD pipelines for the models using AWS SageMaker and Google Cloud's AutoML.
- Scaled the models to $\sim$200 million sequences using PyTorch's Distributed RPC Framework.
- Slashed training time by $1.8\times$, inference time by $4.5\times$, and memory utilization upto $13\times$ via transformer sparsification.

University of Liverpool   **Liverpool, United Kingdom**
Research Intern   *Jan. 2021 - June 2021*
- Developed and published two novel transformer based deep learning models: FragNet and MassGenie.
- Delivered a benchmark correlation of 0.68 between molecules' structure and corresponding latent vector using FragNet.
- Achieved record hit-rate of 53% on CASMI challenge data using MassGenie, by being trained on 21 million data samples.

Nirma University   **Ahmadabad, India**
Undergraduate Research Assistant   *May 2019 – Dec. 2020*
- Research in the area of Geographical Information Systems (GIS), funded by NISAR (NASA-ISRO SAR) partnership.
- Designed vehicle prediction system using Apache Spark and Hadoop backend. Published work in SN Applied Sciences.
- Acquired full-polarimetric SAR data for LULC classification. Used SVM and RF (71% accuracy) on the prepared dataset.
- Also implemented U-Net (0.61 IoU) to generate LULC segmentation maps. Built UI using Gradio.

PUBLICATIONS

- Shrivastava, Aditya Divyakant, et al. "MassGenie: A transformer-based deep learning method for identifying small molecules from their mass spectra." Biomolecules 11.12 (2021): 1793.
- Shrivastava, Aditya Divyakant, and Douglas B. Kell. "FragNet, a contrastive learning-based transformer model for clustering, interpreting, visualizing, and navigating chemical space." Molecules 26.7 (2021): 2065.
- Shrivastava, Aditya, et al. "A deep learning based approach for trajectory estimation using geographically clustered data." SN Applied Sciences 3.6 (2021): 597.
- Shrivastava, Aditya. "Adma: A Flexible Loss Function for Neural Networks." arXiv preprint arXiv:2007.12499 (2020).
- Shrivastava, Aditya, Aksha Thakkar, and Vipul Chudasama. "An Online Planning Agent to Optimize the Policy of Resources Management." Proceedings of Second International Conference on Computing, Communications, and Cyber-Security: IC4S 2020. Springer Singapore, 2021.

TECHNICAL SKILLS

- **Languages:** Python, C & C++, Javascript, HTML/CSS, Java, SQL, PHP
- **Frameworks:** PyTorch, TensorFlow, Numpy, Scipy, Pandas, Gym, OpenCV, PySpark, Flask, ReactJS, VueJS
- **Developer Tools:** Git, Vim, Alacritty, Visual Studio, Jupyter Notebook, Android Studio
- **Technologies:** Linux, Docker, Kubernetes, Apache Hadoop, MongoDB, Node.js, Google Cloud, Amazon Web Services

ACHIEVEMENTS & LEADERSHIP

● GRE: 338/340 (170/170 Quantitative Reasoning, 168 Verbal Reasoning, 4.5 AWA) ● Guest Speaker, Image Processing Workshop, Pandit Deendayal Petroleum University (Sep. 2019) ● Instructor, Workshop on C++ and Game Development, Gujarat Science City (June 2019) ● 8 MOOCs - Deep Learning Nanodegree, Full-Stack Web Development with React Specialization, Modern Application Development with Python on AWS