Anshumaan Chauhan

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EDUCATION

University of Massachusetts Amherst **Sep 2022 – May 2024**
Master of Science (MS) in Computer Sciences GPA- 3.93/4

Birla Institute of Technology and Science Dubai **Aug 2018 – June 2022**
Bachelor of Technology (BTech) in Computer Sciences GPA- 9.83/10

Relevant Coursework: Algorithms for Data Science, Systems for Data Science, Machine Learning, Artificial Intelligence, Natural Language Processing, Reinforcement Learning, Software Engineering, Neural Networks, Object Oriented Programming, Database Management Systems, Data Structures and Algorithms.

SKILLS

Programming Languages: Python | Java | HTML | CSS | TypeScript | SQL | NoSQL | LaTex
Amazon Web Servies: EC2 | Lambda | Batch | S3 | DynamoDB | Athena | Step Functions | SNS | SES | SDK | CDK
Frameworks/Tools: Tableau | SLURM | Git | Postman | Docker | Airflow | Snowflake | Apache Spark | Linux | Streamlit | Kubernetes | MySQL | PostgreSQL | MongoDB | DuckDB | JIRA | Confluence | Lucidchart
Machine Learning Tools: PyTorch | Tensorflow | NumPy | pandas | scikit-learn | Matplotlib | Seaborn | Transformers
Certifications: Machine Learning (Coursera) | Neural Networks and Deep Learning (Coursera) | Ultimate AWS Certified Cloud Practitioner (Udemy) | Python for Data Science and Machine Learning Bootcamp (Udemy)

PROFESSIONAL EXPERIENCE

Data Engineer, Bose Corporation, Framingham, MA **July 2024 - Present**

- Designed and implemented secure event-driven ETL pipelines using AWS serverless components (Lambda, Step Functions, Secrets Manager), achieving a 5% cost reduction through efficient secret consolidation and provisioning automation.
- Utilized SQL transformations and Snowpark for seamless Python integration to optimize data extraction processes for PowerBI Cloud, enhancing data loading into Snowflake and reducing operational costs by 10%.
- Developed a Streamlit app for JIRA ticket creation, leveraging AWS pipelines for automated data fetching, resulting in a 20% increase in onboarding productivity.
- Created alert and failure monitoring pipelines with a Streamlit dashboard for Snowflake-deployed apps, leveraging telemetry logs and reducing downtime by 25% through daily queries via cron jobs.

Graduate Student Researcher, Amazon, Amherst, MA **Feb 2024 – Jun 2024**

- Conducted experiments to enhance small language models (SLMs) with custom reasoning chains, identifying limitations in zero-shot performance.
- Proposed a decoupled three-step process (plan, reason, answer extraction) that improved GSM8K benchmark scores by +0.57 for 3B models and +3.32 for 7B models.
- Developed and tested a Partial Self Consistency (PSC) method for ensemble analysis, demonstrating that PSC outperforms standard self-consistency by up to +1.85 across various reasoning techniques.

Machine Learning Researcher, Florida Institute of Technology, Melbourne, FL **Jan 2022 – Jun 2022**

- Analyzed and extracted the representation of the specifications in a subset of English language using Natural Language Processing (NLTK library) and designed a compiler for translating it to AADL. (Published at ASME)
- Proposed a Double Deep Q-Network for NAS, reducing scalability and time complexity while maintaining 97% of SOTA performance with ~35% fewer layers.
- Developed an unsupervised DBSCAN-based approach for medical image segmentation, achieving Dice Coefficients of 0.784 and 0.88 for kidneys and lungs, while avoiding the need for large, labeled datasets. (Published at IEEE MIC)

Student Researcher, Birla Institute of Technology and Science, United Arab Emirates **Aug 2020 – Dec 2021**

- Developed a denoising autoencoder architecture with Z-score normalization, Robust PCA for data denoising, and projected gradient descent, resulting in a 95.8% accuracy in novelty detection, outperforming state-of-the-art models by 2.2-4.3%. (Published at IJACSA)
- Enhanced Support Vector Machines with a genetic algorithm inspired by Reinforcement Learning, boosting accuracy from 6.12% to 36.52%, and achieved a 3rd generation model accuracy of 93.88%. (Published at IJACSA)

Software Engineer Intern, Tata Communications, India **Jun 2020 – Aug 2020**

- Developed automated system in Python using Flask, Urllib and requests libraries/frameworks, improving the customer targeting and user experience based on clicks per second and user heatmap on the website.
- Performed cross functional evaluation and strategy testing along with a team of 5 developers and marketing analysts, increasing the SEO rankings of the websites while reducing hosting costs and marketing spend by >14%.

ACHIEVEMENTS

- Awarded Bronze Medal for an outstanding academic performance and standing third amongst the batch.