

# Anshumaan Chauhan

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## Education

### University of Massachusetts Amherst

2022 – 2024

*Master of Science (MS) in Computer Sciences*

GPA- 3.93/4

- Relevant Coursework: Algorithms for Data Science, Systems for Data Science, Machine Learning, Artificial Intelligence, Natural Language Processing, Reinforcement Learning, Software Engineering, Neural Networks.

### Birla Institute of Technology and Science Dubai

2018 – 2022

*Bachelor of Technology (BTech) in Computer Sciences*

GPA- 9.83/10

- Awarded merit scholarship based on my GPA.
- Awarded Bronze Medal for an outstanding academic performance and standing third amongst the batch.

## Professional Experience

### Bose Corporation, Framingham, MA - Data Engineer

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.

### Amazon, Amherst, MA – Graduate Student Researcher

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.

### Florida Institute of Technology, Melbourne, FL – Machine Learning Researcher

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.
- 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.

### Birla Institute of Technology and Science, United Arab Emirates– Student Researcher

2020

- 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%.
- 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%.

### Tata Communications, India – Software Engineer Intern

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%.

## Skills

**Programming Languages:** Python | SQL | Java | HTML | CSS | TypeScript | LaTeX

**Databases:** MySQL | PostgreSQL | MongoDB | DuckDB

**Amazon Web Services:** EC2 | Lambda | Batch | S3 | DynamoDB | Athena | Step Functions | SNS | SES | SDK | CDK

**Applications/Tools:** Tableau | Git | Postman | Docker | Airflow | Snowflake | Apache Spark | Linux | Streamlit | Kubernetes

**Productivity Software:** JIRA | Confluence | Lucidchart

**Soft Skills:** Problem Solving | Critical Thinking | Time Management | Team Collaboration | Project Management