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 CoOp*   **2024**
- Designed and implemented secure ETL pipelines using AWS serverless components (Lambda, Step Functions, Secrets Manager), achieving a 5% cost reduction through efficient secret consolidation and provisioning automation.
- Optimized data extraction processes for PowerBI Cloud, reducing operational costs by 10% while enhancing data loading into Snowflake, utilizing SQL transformations and Snowpark for seamless Python integration.
- Developed a Streamlit app for JIRA ticket creation, leveraging AWS pipelines for automated data fetching, resulting in a 20% increase in onboarding productivity.

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 approach to automate Convolutional Neural Network architecture generation, reducing scalability and time complexity while maintaining search space integrity.

Projects

Guided Conditional Image Generation with Conditional Flow Matching   **2024**
- Developed a unified attention-based UNet model incorporating Conditional Optimal Transport and Classifier Free Guidance (CFG) for proficient conditional and unconditional image generation, achieving FID scores of 105.54 and CLIPScore/FID scores of 22.19/385.56.
- Enhanced image captioning for the CIFAR10 dataset using the BLIP2 FLAN T5 model, addressing descriptive limitations and significantly improving the quality of generated captions.

Recipe Infusion   **2023**
- Created a Recipe Infusion framework featuring Recipe Generation and Style Transfer components, enhancing culinary creativity and personalization.
- Fine-tuned the DistilGPT model on combined RecipeNLG and RecipeBox datasets, improving BLEU and Perplexity scores by +0.04 and 24.5 points, respectively, and successfully implemented style transfer for various celebrities using T5-small models.

Skills

Programming Languages: Python | SQL | Java | HTML | CSS | TypeScript | Lex | Yacc
Databases: MySQL | MongoDB | DuckDB
Amazon Web Servies: EC2 | Lambda | Batch | S3 | DynamoDB | Athena | Step Functions | SNS | SES | SDK | CDK
Applications/Tools: Tableau | Git | Postman | Docker | Airflow | Snowflake | PySpark | Linux | Streamlit | LangChain
Productivity Software: JIRA | Confluence | Lucidchart
Soft Skills: Problem Solving | Critical Thinking | Time Management | Team Collaboration