

Danishjeet Singh

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Education

Indiana University, Bloomington

B.S. in Computer Science | 3.677 GPA

Minor: Data Science & Statistics

Bloomington, IN

May 2025

Skills

Python, JavaScript, C#, .NET, R, Java, C++, SQL, GCP, Postgres, MongoDB, , HTML, CSS, , Tableau, Git, Linux

Experience

Observatory on Social Media, Indiana University

Research Assistant

Bloomington, IN

January 2023 - Present

- Reduced image similarity analysis duration from 14 days to just 3 minutes, processing 860 million comparisons with a 99.98% reduction in runtime.
- Utilizing Transformer models such as CLIP to perform image topic modelling and compare the spread of toxicity on different social media platforms such as Meta and Twitter(X)
- Developing a tool leveraging various Vision-Language Models (VLLMs) to accurately detect and reason about AI-generated faces with over 95% accuracy

IU Computer Vision Lab, Indiana University

Research Assistant

Bloomington, IN

May 2022 - January 2023

- Implemented Image Diffusion Models and Generative Adversarial Networks to generate 1000+ novel and creative samples for image datasets.

Projects

Detecting AI Faces on Twitter(<https://arxiv.org/pdf/2401.02627.pdf>)

- Estimated around 10k daily active Twitter(X) have a AI generated profile picture by developing a eye-region based classifier with a 99% precision and 95% recall.
- Developed an image ranking pipeline to assess the likelihood of AI-generated Twitter profile images, analyzing 10M samples.
- Reduced processing time from 4 days to 4 hours using parallel computing techniques in Python.

GPT Stock Trading Bot (singhdan.me/trading)

- Developed a stock trading algorithm leveraging GPT-3 and real-time data from Jim Cramer's tweets.
- Integrated the bot with Alpaca's API to perform paper trades with an initial simulated capital of \$100,000.
- Monitored the bot's performance over a week, resulting in a 7% decrease in portfolio value, highlighting the challenges and potential risks associated with sentiment-based trading strategies.

Denosing Diffusion models(singhdan.me/diffusion)

- Developed an unconditional diffusion model from scratch, generating novel and high-quality landscape images.
- Implemented four label-based conditional diffusion models, enhanced with Exponential Moving Average (EMA) and Classifier-Free Guidance techniques, resulting in a 15% improvement in image quality over standard diffusion models.

Activities

Google Developer Student Clubs

Technical Lead

Bloomington, IN

Sep 2021 - May 2024

- Delivered over 5 impactful machine learning lectures, integrating cutting-edge Generative AI techniques, captivating and engaging 200+ students from diverse backgrounds in leading computer vision research and foundational concepts.