Satyam Goyal

Computer Science
goyalsatyam.com
University of Michigan, Ann Arbor

✉ sagoyal@umich.edu
 github.com/Satgoy152
 linkedin.com/in/satyam-goyal-me/

EDUCATION

•**University of Michigan, Ann Arbor** *Junior*
B.S. Computer Science GPA: 3.95

TECHNICAL SKILLS AND INTERESTS

Programming Languages: Python, Java, C++, Javascript, SQL, Ruby
Machine Learning Tools: OpenAI, LM Studio, PostgreSQL(VectorDB), Langchain, Pandas, TensorFlow, Pytorch, Keras, Scikit-Learn
Cloud/Databases: AWS (EC2, Lambda, SES, Cloudwatch), Kubernetes, Jenkins, Docker, CI/CD, Firebase, MySQL
Certifications: PCEP (Sept. 2022)
Coursework: 442 (Computer Vision), 445 (Machine Learning), 281 (Data Structures), 376(Algorithm Design), STATS: 280 (Data Analysis), ROB: 101 (Linear Algebra)

INDUSTRY EXPERIENCE

•**Optiwise Inc.** *May 2024 - Sept. 2024*
ML and Data Intern
- Enabled execution of efficient marketing campaigns by developing reports and databases from customer email data using **AWS Lambda** functions, SQL, and **PowerBI.**
- Improved user workflow by creating a recommendation system that provides customers online marketplace feedback based on their product reviews using **GPT4o**, **LangChain**, and **RAG**.
- Boosted sales productivity and cross-functional collaboration by automating growth and marketing pipelines with advanced data analysis.

•**Harvard Medical School** *June 2022 - Sept. 2022*
Software Engineering Intern
- Contributed to an open-source pipeline for microscopic image analysis. The software will help decrease patient lab testing turnaround time by automating tasks.
- **Created quantification modules** for post-processed cell images.

•**Open CV** *June 2022 - Sept. 2022*
Open Source Contributor
- Published documentation for object recognition modules to make access to state-of-the-art libraries more accessible.

RESEARCH EXPERIENCE

•**IBM Research Assistant,** First Author *May. 2024 - Sept. 2024*
- Evaluating and **benchmarking LLM (Claude, GPT, Llama) model performance** on multi-modal linguistic tasks.
- Developing an open source dataset of linguistic problems for training and testing transformer models.
- Novel research in improving LLM performance on multivariate time-series prediction.

•**Colorblind Image Correction Algorithm,** First Author, **Accepted to AAAI-24** *June 2023 - Sept. 2023*
- Developed and trained a deep learning **Encoder-Decoder model** using **Tensorflow**, for generating color-corrected images to aid colorblind farmers.
- Responsible for machine learning algorithm selection, **feature engineering, data generation**, and model training, evaluation, optimization, monitoring, and documentation.
- Constructed a novel architecture and **loss-function** to optimize training by 30%.

•**Modeling and synthesizing new clathrate structures,** First Author *Dec. 2022 - Sept. 2023*
- Enabled exponentially faster molecular property prediction using large-scale **graph neural networks.**
- Improved model accuracy with **fine-tuning** on clathrate crystal structure data.

PERSONAL PROJECTS

•**Tailored Academic & Resource Assistant (Tara),** talk2tara.app *July. 2024 - Present*
- Developed an **AI-Chatbot** for University of Michigan students, providing personalized academic and career guidance using advanced **LLM and RAG technologies**
- Provided tailored recommendations and support by integrating real-time data on course offerings and student records
- **Doubled response quality** and decreased costs by 40% using novel **semantic chunking** methods for efficient data retrieval.

CLUBS AND ORGANIZATIONS

•**CodeLab,** Project Manager and Events Lead *Oct. 2022 - Jun. 2023*
- Recruited by the largest tech-consulting group in UC Davis.
- Contracted by Optiwise.ai to develop a content generation tool, that uses **Natural Language Processing, Generative AI, and Image Processing**, to automate the creation of high-quality content for sellers on Amazon and Walmart.