


Bhavna Matwani

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EDUCATION

New York University, Courant Institute of Mathematical Sciences, New York City, New York

Master of Science in Computer Science | GPA: 3.867/4.0

Sep 2022 – May 2024

Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, India

Bachelor of Technology in Electrical Engineering | GPA: 8.86/10.0

Jul 2018 – May 2022

TECHNICAL SKILLS

Languages - C++, Python, TypeScript, Javascript, C, MATLAB, SQL, HTML, Java, Scala, Ocaml, Embedded C

Frameworks/ Libraries - Pytorch, Keras, TensorFlow, OpenCV, Pandas, OpenAI

Tools - Node.js, React, Angular, Spring Boot, Maven, GitHub, Docker, Kubernetes, OpenShift, Swagger/OpenAPI, Flask, GitHub Actions

Cloud and Big Data Technologies - Google Cloud Platform, AWS, HDFS, MapReduce, Hive, Trino, Zookeeper, Kafka, Selenium

WORK EXPERIENCE

Platform Developer Intern, Vimibly Group

May 2023 – Aug 2023

- Developed the SmartSMS Image Generator, an AI-powered tool that seamlessly transforms text prompts into engaging images, bolstering customer interactions for over 100 million messages across 4,000+ businesses using LLMs and Image Generation.
- Incorporated comprehensive activity logs and advanced account management options within the Customer Support Panel.
- Outlined feature specifications to gauge user adoption and identified areas of improvement for 3 Generative AI features.

Software Engineer Intern, Mastercard Technologies

May 2021 – Jul 2021

- Built Angular GUI tool for visualising, tracking transactions in real time and pin-pointing failures.
- Deployed Springboot based app on Heroku cloud to ease communication with log aggregator.
- Scraped logs using REST APIs for improving log traceability.

Summer Research Scholar, Indian Institute of Science

Jun 2020 – Dec 2020

- Trained and reviewed accuracy of CNNs and Capsule Networks on MNIST and CIFAR-10 datasets.
- Analyzed CapsNet's accuracy by adding class independent decoder, removing reconstruction loss and varying activation function.
- Attained a validation accuracy of 81% over 10+ modifications.

SELECTED PROJECTS

E-Commerce Shopcarts Microservice

- Created a Python microservice using Flask, complete with Swagger API documentation and Docker achieving 95% code coverage
- Managed Kubernetes and OpenShift deployments, showcasing expertise in microservices and CI/CD practices within an Agile team.

FrameForesight

- Trained frame prediction model on a 13,000-video unlabeled dataset, predicting the 22nd frame from the first 11 frames.
- Applied results to a semantic segmentation model trained on 1,000 videos, classifying 49 object characteristic combinations with an accuracy of 0.2152 compared to 0.0193 baseline accuracy.

Multi-Runner Segmentation and Privacy-Preserving Focus in Marathon Images using Racing Bib Detection

- Leveraged YOLOv4 to achieve precise racing bib detection and number recognition and MASK R-CNN, an advanced segmentation algorithm, to successfully isolate each runner in event photographs
- Integrated a custom privacy-preserving techniques, ensuring ethical and responsible dissemination of marathon event photographs by selectively applying blurring to all runners, while highlighting the participant identified by the racing bib number.

Assessment of Safety Metrics Across Neighborhoods in New York City (NYC)

- Engineered a Big Data Analytics tool to assess safety in NYC neighborhoods to establish comprehensive safety rankings in NYC neighborhoods by Zip Code, enhancing the granularity of safety assessments.
- Generated visually intuitive year-wise and zipcode-wise safety heatmaps, facilitating a nuanced understanding of safety patterns and supporting informed decision-making for targeted interventions.

Tunes for Expression

- Formulated a facial analysis based utility to recommend songs using Haar Cascade Classifier and CNN model trained on FER Dataset to achieve a 65% test accuracy for 7 class recognition.

Virtual Try-On Network

- Devised a CNN system where garments are transferred across images of people with arbitrary body pose, shape and clothing using Graphical Matching Module.

Gesture Interpreter for Specially Abled

- Effected an interpreter for translating hand gesture language of specially abled people into readable and audible formats using ResNet50 for 9 class recognition with a test accuracy of 98.93%.

Operating System Simulator

- Simulated an Operating System by implementing the Linker, Memory Management Unit, Process and Disk Scheduling, Banker's algorithm and Socket Programming using C++.

ADDITIONAL ROLES

- Recitation Leader, NYU Courant Math Dept.** – Led recitations for Calculus 1, addressing student queries and grading assignments.
- Grader, NYU Courant CS Dept.** – Conduct comprehensive evaluation and assessment for the course Mathematical Techniques in CS Applications of student assignments, quizzes, and exams, adhering to established grading criteria and guidelines.