

# Satyam Chandrakant Chatrola

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## EDUCATION

### New York University

Master of Science in Computer Science (CGPA: 3.61 out of 4.00)

New York City, NY

September 2023 – May 2025

### Gujarat Technological University

Bachelor of Engineering in Computer Engineering (CGPA: 3.79 out of 4.00)

Gujarat, India

June 2018 – June 2022

## EXPERIENCE

### Rapidops

Machine Learning Engineer / Data Scientist

Ahmedabad, India

January 2022 – June 2023

#### Face Authentication and Authorization System (Python, PyTorch, YOLO, MTCNN, FaceNet, Triplet Loss, Qdrant, OpenCV)

- Spearheaded a face authentication and authorization system with **4 environments and 2 access points** while **leading a team of 3**, from **data collection through on-premises deployment and monitoring**; enhanced productivity tracking and premises security.
- Architected a **scalable microservice** utilizing YOLO, MTCNN, fine-tuned FaceNet model, and Qdrant to achieve **low-latency** authentication and authorization on **live video streams**, delivering a **0.93 F1 score** without need to retrain for new individuals.

#### AI-Powered Search and Recommendation System (Python, PyTorch, Hybrid Recommenders, Apache Solr, Docker, FastAPI)

- Boosted **conversion rate** by **23%** and **click-through rate** by **42%** with **collaborative, content, and market-basket** recommenders.
- Engineered search & recommendations with **custom taggers & LTR** techniques with **Apache Solr** to serve results in **25ms**.

#### Natural Language (English) to SQL query generation (Python, TensorFlow, Keras, T5, BERT)

- Researched and benchmarked **State of the Art (SOTA) AI models** generating SQL from Natural Language with **76% EMA**.
- Experimented with Transformers (**T5, BERT**) generating **73% Exact Match Accuracy (EMA)** with **36%** faster inference.

## SKILLS

**Languages and DBs:** Python, SQL, C, C++, Java, PostgreSQL, MySQL, MongoDB, Elasticsearch, Apache Solr, Qdrant (vector DB)

**AI and ML:** SVMs, Gradient Boosted Trees, Clustering, Computer Vision, NLP, ANN, CNN, RNN, Recommendation and Search Systems, Transformers, Prompt Engineering, Generative AI (GANs, Diffusion models), LLMs (RAG, PEFT, LoRA).

**Data Science:** NumPy, Pandas, Polars, Matplotlib, Seaborn, SciPy, Scikit-learn, PyTorch, TensorFlow, Transformers, AutoGluon, Optuna, Tableau, Statistical Modeling, Stochastic Methods, Numerical Analysis, Hypothesis Testing, A/B Testing, .

**MLE, MLOps and Data Eng.:** AWS SageMaker, ONNX, TensorRT, MLflow, Evidently, Apache (Hadoop, Spark, Airflow, Kafka).

**SWE and Others:** AWS, Google Cloud Platform (GCP), REST APIs, Git, Docker, Kubernetes, CI/CD (GitHub Actions, CircleCI), Flask, Django, FastAPI, Redis, Pytest, Terraform, System Design, HTML, CSS, JavaScript, Node.js.

## RESEARCH EXPERIENCE

### Approaches to Type 2 Diabetes Mellitus Prediction with Machine Learning and Deep Learning

- Researched AI techniques for Type-2 Diabetes Mellitus classification with **95.8% precision, 95.8% recall, and 99.4% specificity**.

## CERTIFICATIONS

- Graduated from Udacity's AWS Machine Learning Engineer Nanodegree with top remarks.
- Earned Inferential Statistical Analysis with Python Certification from the University of Michigan.
- Attained official University of Michigan Certification in Applied Machine Learning using Python.

## PROJECTS (with Embedded GitHub Repository URLs)

### Microservices webapp: Essay Evaluator (Python, PyTorch, ONNX, TensorRT, FastAPI, AWS, MLflow, Evidently, Frontend)

- **Calibrated** Transformers (**BERT**) and LLMs (**GPT-2**) with **PEFT techniques** (quantization), cosine-annealed learning rate and warm-up to assess essays, attaining a **Kappa Score of 81.7%** and **surpassing the Benchmark** score by **5.7%**.
- Orchestrated **2 fault-tolerant microservices** & inferred with **ONNX models** and **TensorRT** via **asynchronous REST APIs**.

### ETL Data Pipeline migration to Spark (Python, PySpark, AWS, MinIO, Databricks.Koalas)

- Migrated **ETL pipeline** to **Spark** for NYU's **Open-Source** wildlife trafficking prevention project with **160% speedup**.

### AWS Dog Breed Classifier (Python, PyTorch, AWS (SageMaker, S3, Lambda, EC2, CloudWatch, IAM), Code Profiling, Monitoring)

- Developed a **133** dog breeds image classifier with **92%** accuracy on AWS with **concurrent** and **auto-scaled** inference endpoints.

## ACHIEVEMENTS

- Clinched **1st place** in INDRA-9 (**renewable energy contest**) through **smart irrigation system** for sustainable agriculture.
- Secured **1st runner-up** in the Kaggle O Predictor challenge, leveraging cutting-edge **predictive modeling techniques**.
- Delivered **Git - GitHub** and **Machine Learning workshops** for **23 summer interns, propelling 12 project contributions**.