

# Siddharth Mehta

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## EDUCATION

### University at Buffalo

M.S. Computer Science; GPA: 3.93/4

August 2024 - December 2025

Buffalo, New York

- Relevant coursework: Machine Learning, Computer Vision, Algorithm Design, Data Intensive Computing

### National Institute of Technology

B.Tech in Electrical Engineering; GPA: 8.24/10

August 2018 - May 2022

Hamirpur, India

## SKILLS

**Machine Learning:** PyTorch, TensorFlow, Scikit-learn, XGBoost, Transformers, FAISS, OpenCV, A/B Testing

**Data Engineering:** PySpark, Airflow, Spark, Hadoop, Kedro, Data Modeling, ETL Pipelines

**Cloud/MLOps:** AWS (S3, EC2, EMR), GCP, Docker, MLflow, CI/CD, Kubernetes

**Programming:** Python, SQL, C++, GitHub

## PROFESSIONAL EXPERIENCE

### Data Science Intern

Walmart

July 2025 - Present

Bentonville, AR

- Implemented an LLM-driven feedback pipeline analyzing **5k+ monthly artifacts** (support tickets, reviews, call logs), clustering with FAISS/HDBSCAN to automate FAQ generation-projected to **reduce customer-care tickets by 30%**.
- Deployed KL-divergence monitoring to detect cluster drift to keep **unseen-issue miss rate under 2%**.
- Built an LLM-based judge to score FAQ drafts for relevance and compliance, saving 90% manual review effort and accelerating deployment by 24 hours, forecasting **95% cost savings** over manual updates.
- Conducted an A/B testing with a 20% traffic pilot; **doubled query-to-FAQ match accuracy** by using BART-based extractive summarization of clustered feedback while preserving 95% semantic similarity.

### Machine Learning Researcher

University at Buffalo

January 2025 - May 2025

Buffalo, NY

- Developed a self-collimation SPECT analytical framework enabling design iterations to run over **7x faster** than traditional Monte Carlo simulations, and implemented novel configuration **outperforming benchmarks by 20%**.
- Devised a novel metric (Angular Sampling Completeness Index) to evaluate sampling coverage in SPECT; validated on phantoms and **accepted for publication at SPIE Medical Imaging Conference**.
- Applied PyTorch-based convex-hull ray-tracing optimization, **reducing system-matrix calculation time by 85%**.
- Automated detector and collimator configuration using Bayesian optimization to maximize reconstruction quality.

### Data Science Associate

ZS Associates

June 2022 - July 2024

Pune, India

- Led engineering for the vaccines franchise's Next-Best-Engagement platform, integrating over **15 data sources** to process **1M+ weekly records** and **reducing data defects by 30%**.
- Designed the PSTAR prioritization algorithm, optimizing rep calls, reducing effort 20% while maintaining engagement.
- Built XGBoost ensembles for target prioritization, identifying top 5% customers while maximizing patient opportunity ( $R^2=0.70$ ), and devised a touchpoint strategy to maximize engagement (**85% channel prediction accuracy**).
- Generated **\$100K in extra revenue** by exceeding client expectations and enabling two new extensions.

## PROJECTS

### Research Paper Coding Assistant

January 2025 - February 2025

- Created a retrieval-augmented generation (RAG) system with Mistral-7B + CodeLlama to answer technical questions from 50+ machine-learning papers, reaching **76% F1 Score** and 4.5/5 human-relevance score.
- Merged FAISS vector search with TF-IDF reranking to boost hit recall **28%** over baseline keyword search.
- Deployed a quantized model on a local 4 GB RAM device, **cutting inference cost by 40%** while maintaining sub-second latency.

### Cuffless Blood-Pressure Prediction | GitHub

August 2021 - April 2022

- Developed a hybrid CNN-LSTM that estimates systolic/diastolic BP from ECG + PPG signals; achieved **MAE 5.1 mmHg** (SBP) and 3.8 mmHg (DBP) on MIMIC-II, meeting AAMI/ISO standards.
- Applied Butterworth filtering and detrending to enhance signal-to-noise ratio, enabling **78.2%** accuracy with PTT-based estimation on 38 k+ patient records.
- Co-authored a conference paper comparing classical ML vs. deep-learning approaches for non-invasive BP monitoring.