SAAKETH CHOUDARAPU

Boston, MA | (857)308-9608 | choudarapu.s@northeastern.edu|Linkedin

EDUCATION

Master of Science, Internet of Things, Northeastern University, Boston, MA **September 2024 – May 2026**

Coursework: Wireless sensor networks and Internet of Things, Wireless communication systems, Machine Learning, Fundamentals of computer engineering

Awards and achievements: Dean's Scholarship of 25 percent on Tuition Fees

Bachelor of Technology, Computer Science – IOT, GITAM University, India **August 2020 – May 2024**

Coursework: Computer Networks, Data Structures, Cloud Computing, Object Oriented Programming, Python Programming, AI, ML, Wireless sensor networks, IoT protocols and architecture, IoT security, Embedded systems, Database Management systems sensor technology.

Awards and achievements: Student all-rounder of the year 2022, Achiever of the batch 2020-2024

SKILLS

- Programming Languages: Python, C, HTML, Java, SQL, Verilog.
- IoT platforms: AWS IoT Core, MQTT, Raspberry Pi, Arduino
- Development Tools and Environments: JetBrains, Visual Studio, Jupyter Notebooks, MATLAB, Power BI, Postman, Cooja, NS3, Intel Quartus Prime, FPGA, Wireshark
- Database Management: MySQL, MongoDB, Influx DB, Grafana
- Cloud & Infrastructure: AWS (EC2, IAM, S3, Lambda), Terraform, Microsoft Azure
- Machine Learning: Scikit-learn, TensorFlow (Basics), Pandas, NumPy, LLMs.

WORK EXPERIENCE

Teaching Assistant, Northeastern University - Boston, USA **December 2024 – Present**

- Delivered hands-on lab sessions for 125+ students on digital circuit design, FPGA programming, and Verilog HDL.
- Guided students in designing and simulating circuits using Intel Quartus tools, improving practical understanding of computer architecture.
- Provided one-on-one mentorship, clarifying concepts of sequential logic, combinational circuits, and FPGA gate-level programming

Research Assistant, Northeastern University - Boston, USA **September 2024 – December 2024**

- Conducted research on latency-optimized routing algorithms for autonomous vehicle networks.
- Developed a priority-based algorithm to reduce latency, optimize link quality, and enhance reliability with energy efficiency
- Automated the functional concepts of the objective functions in routing protocols and executed simulations across multiple operating systems and software to enhance the algorithm's efficiency.

IoT Engineer and Python developer, Frugal Labs - Bangalore, India **May 2023 – July 2023**

- Developed backend applications using Python and MQTT-based microservices architecture for IoT gateways.
- Led system performance optimization initiatives, resulting in improved data handling efficiency and reduced latency.
- Integrated the application to AWS for cloud deployment and implemented an IOT gateway.
- Built automated IoT alerts based on sensor data thresholds, improving system reliability for agricultural deployments.

PROJECTS

Northeastern University

Priority-aware protocol for noncritical systems in autonomous vehicles **October 2024- December 2024**

- Designed and implemented a routing protocol for autonomous vehicle subsystems, focusing on prioritized communication based on functional dependencies.
- Addressed latency challenges, improving the response time of critical and semi-critical applications.

IoT-based irrigation system **May 2023 – July 2023**

- Built a fully automated irrigation system utilizing soil pH sensors and AWS IoT Core for real-time monitoring and alerting.
- Implemented an IoT gateway to automate watering cycles based on sensor readings, optimizing water usage for agriculture.

Airline Tweet Sentiment Analysis Using Machine Learning **April 2025 – July 2025**

- Developed a machine learning pipeline to classify airline tweets into positive, negative, and neutral sentiments
- Used feature engineering techniques (TF-IDF, word embeddings) and models such as Logistic Regression, SVM, and LSTM to achieve over 80% accuracy. (surpassing 70-75% on existing techniques)
- Designed end-to-end data preprocessing, model training, and evaluation workflows.

Water Quality Prediction Using IoT and AI Models **March 2025 -April 2025**

- Deployed an IoT-based sensor system to collect real-time water quality data (pH, turbidity, sulfate, etc.).
- Applied machine learning algorithms (Random Forest, SVM, LSTM) to predict potable vs. non-potable water quality.
- Achieved high prediction accuracy and developed an early warning system for contamination detection.

PUBLICATIONS

Breast Cancer Detection Using Nanoparticle Sensor with Machine Learning Algorithms, IEEE CONIT – 2024, Bangalore IEEE. https://ieeexplore.ieee.org/document/10627465