Naren Rachapalli

nrachapa09@gmail.com | +1 (630) 280-4723 | nrachapa.github.io | linkedin.com/in/nrachapa | github.com/nrachapa

EDUCATION

B.S. Computer Science **|** Purdue University **|** West Lafayette, IN — August 2020 - December 2024

RELEVANT COURSEWORK

Artificial Intelligence, Data Mining and Machine Learning, Systems Programming, Data Structures & Algorithms, Cloud Computing, Human-Computer Interaction, Linear Algebra, Probability

SKILLS

Languages: Python, C/C++, SQL, Ruby, Java, Shell Scripting, HTML, CSS, JavaScript
Technologies: Pandas, NumPy, Spark, Keras, NLTK, Grafana, AWS, PyTest, Flask, Docker, Git

WORK EXPERIENCE

Software Development Engineer — September 2024 - Present
Amazon | Seattle, WA
Python, C++, Ruby, PyTest, Shell Scripting, Grafana, AWS (S3, ECR), Docker

- Led large-scale infrastructure migration of AWS real-time AI/ML transcription service to automated fleet management system by designing global deployment strategy, automating fleet scaling while maintaining 100% service availability
- Automated customer terminal provisioning by developing a python script to configure modulation frequency schemes.
- Implemented a custom testing framework to command and manage all venues across the satellite in production.
- Built a test suite to trigger a gps emulator to spoof ground gateways for simulating satellite contact scenarios.
- Developed a tool to periodically collect and process MAC data across venues on the satellite to enable different testing teams to share and assess data on a singular platform.
- Created a processed table in PySpark to summarize all CQM and MAC data, drastically improving the speed by 72% by automating and improving on the original ETL processes along with being able to ingest higher volumes of data.

Undergraduate Research Assistant — August 2023 - May 2024
Purdue Computational Quantum Electromagnetics Lab | West Lafayette, IN
Python, NumPy, SciPy, Matplotlib

- Designed and developed an algorithm for generating Hamiltonian matrices tailored to diverse quantum systems by allowing it to generate based on different transmon qubits and cavities.
- Developed ordinary differential equations to effectively solve Schrödinger's equation for in-depth analysis of the quantum system dynamics.

Software Development Engineer Intern — May 2022 - August 2022, May 2023 - August 2023
Amazon Project Kuiper | Redmond, WA
Python, SQL, PyTest, Shell Scripting, Grafana, AWS (S3, ECR, SageMaker), Docker

- Designed statistical models to validate hardware and software across satellite subsystems by analyzing time-series telemetry, resulting in a 70% improvement in validation efficiency.
- Leveraged real-time forecasting to proactively identify anomalies in live telemetry for quicker interventions.
- Developed dashboards to simulate orbital modem pass performance, identifying key areas for correction.
- Achieved certifications in AWS Cloud Practitioner Essentials, MLOPs, and Time Series Forecasting.
- Pioneered a network anomaly detection model across layers and links into the production test automation framework.
- Generated a dynamic data visualization dashboard utilizing telemetry from antenna hardware and cloud services.
- Impacted satellite subsystems, production environment test procedures, and mission operations procedures.
- Documented model architecture and provided training for end users, ensuring smooth adoption.
- Presented vital statistical insights on network traffic patterns to Amazon Project Kuiper leadership.

PROJECTS

Bitcoin Reinforcement Learning Trading Bot — August 2020 - May 2021
Python, TensorFlow, Scikit-Learn, Keras, Pandas, NumPy | Github Link

- Engineered a real-time trading bot with a 74% ROI using Deep Recurrent Q-Network with CUDA support to optimize strategic buying and selling based on historical bitcoin data.

Email Extraction Automation Tool — May 2020 - August 2020
Python, Pandas, Scikit-Learn, NLTK, UiPath

- Developed an NLP tool for eAlliance Corporation to extract order details from emails and integrated an RPA solution to automate SAP data retrieval and responses, reducing inquiry resolution time by 20%.