Krishna Praneet Gudipaty

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EDUCATION

University of Massachusetts Amherst — **Amherst, MA**
Master of Science in Computer Science — *Sep 2022 – May 2024 (Expected)*

- **GPA: 3.96** out of 4.0
- **Relevant Courses:** Theory and practice of Software Engineering, Distributed and Operating Systems, Quantum Information Systems, Secure Distributed Systems, Machine Learning, Applied Information Retrieval, Reinforcement Learning
- **Experience:** Grading Assistant for Distributed and Operating Systems (CS 677), Spring 2024

Indian Institute of Technology Madras (*IITM*) — **Chennai, TN**
Bachelor of Technology (B. Tech) — *Aug 2016 – Dec 2020*

- **GPA: 8.75** out of 10.0
- **Relevant Courses:** Data Structures and Algorithms, Cloud Computing, Machine Learning, Game Theory, Linear Algebra and Numerical Analysis, Probability and Statistics

PROFESSIONAL EXPERIENCE

Deskera — **Remote**
Software Development Engineer (Full-stack) — *Dec 2020 – Jul 2022*

- Developed RESTful microservices using Java (*Spring Boot*) and built frontend with React following agile principles
- Designed a scalable web application for automated consolidation of invoices and payment data across e-commerce channels
- Enhanced data processing with multi-threading and implemented asynchronous event processing with Apache Kafka
- Implemented webhook endpoints and triggers to synchronize PostgreSQL database updates with partner applications

Publicis Sapient — **Bangalore, KA**
Software Engineer Intern (Full-stack) — *May 2019 – Jul 2019*

- Developed an agile microservices-based platform for trading short-term maturities and tracking their performance
- Developed backend service for trading logic in the backend and user authentication server using Spring framework in Java
- Designed fund finder for displaying funds in real-time and user portfolio UI for managing assets using React

Boeing — **Bangalore, KA**
Software Research Intern (MATLAB, GNU Octave) — *Jun 2018 – Jul 2018*

- Implemented image processing algorithms for Assisted Defect Recognition (*ADR*) software using MATLAB
- Developed a feature extraction pipeline consisting of noise reduction and edge-detection using Fast Fourier Transform (*FFT*)
- Achieved **95%** mean accuracy in quantifying the volume of defective segments in airplane torque arm images

KEY PROJECTS

LDPC Decoders for Quantum Error Correcting Codes — *Jun 2023 – Present*

- Developed and deployed a software library of simple iterative bit-flip and belief propagation decoding algorithms in Julia
- Implemented Ordered Statistics Decoding processing that improved logical error rate by **20%** for LDPC qubit codes

Stock Trading System — *Feb 2023 – May 2023*

- Developed a 3-tier stock trading server using Python that handles requests from various clients using a thread-pool model
- Designed replication logic with bully leader algorithm and maintained consistency between replicas even after failure
- Implemented LRU-caching at the top level, which resulted in an improvement in the latency of lookup requests by **20%**

Stock Recommendation System — *Feb 2023 – May 2023*

- Developed a stock recommendation system using Python which analyzes historical data using PySpark and PyTorch
- Implemented LSTM, Random Forest, and Factorization Machine models from SparkMLLib to predict stock closing prices

Elevation-based Navigation System (*EleNa*) — *Oct 2022 – Dec 2022*

- Built a navigation app using JavaScript and React to suggest the shortest path between two user-defined locations
- Implemented Dijkstra's, A*, and BFS algorithms with elevation gain and achieved the best performance with the first two

Machine Learning for predicting Platinum force fields — *Aug 2019 – May 2020*

- Implemented non-linear Machine Learning frameworks for accelerating Ab-initio Molecular Dynamics simulations and achieved **99.5% accuracy** in force-field predictions for Platinum nanoclusters in various environments
- Developed a numerical fingerprinting algorithm to capture translation and rotation invariance in 3-D data and to transform it into feature vectors, which enabled statistical predictions of Platinum force fields based on molecular arrangement

LANGUAGES AND TECHNOLOGIES

Languages: Java, Python, C/C++, SQL, Julia, Javascript, HTML/CSS, MATLAB

Frameworks/Libraries: Spring, NumPy, Matplotlib, PyTorch, PySpark, Tensorflow, PostgreSQL, MongoDB, Django, React, Spark, Kafka, Docker, Kubernetes, JUnit, Pytest, Grafana, Amazon Web Services (AWS)