ARUSH ADABALA

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US Citizen — No Visa Required

PROFESSIONAL SUMMARY:

Software engineer with strong ML research and industry experience across Amazon, Ericsson, Rice University, and MD Anderson. Built systems ranging from RAG platforms and GNN fairness algorithms to embedded ML for Kindle Scribe. Combines deep algorithmic foundations with production-level engineering to deliver scalable, high-impact AI products.

SKILLS:

Programming: Python, Go, Java, C, C++, Rust, R, MATLAB
ML/AI: PyTorch, TensorFlow, RAG systems, GNNs, Fairness modeling, Classification
Tools & Systems: AWS, Azure, SQL, MongoDB, UNIX, Git, Docker
Web Development: React, Tailwind, JavaScript, Node.js
Core Strengths: ML modeling, Distributed systems, Algorithms, ML pipelines, GenAI applications

EXPERIENCE:

ML Research Assistant — Rice University (Aug 2025 – Present)

• Designed a ranking-based fairness metric and re-ranking algorithm improving group exposure fairness in GNN node classification systems.
• Implemented GNN models in PyTorch on large-scale datasets, preparing results for publication in a peer-reviewed journal with Dr. Arlei Silva.

Software Engineer Intern — Amazon (May 2025 – Aug 2025)

• Built a real-time handwritten math recognition system for Kindle Scribe using segmentation models + MyScript.
• Engineered a novel equation solver using union-find across segmented equations represented as a graph, reducing multi-step solving latency.
• Automated LaTeX generation and rendering for low-latency embedded environments.

ML Research Assistant — MD Anderson Cancer Center (Mar 2024 – May 2025)

• Developed a tissue-ranking ML algorithm using Covariance Regression Networks and composite likelihood estimation to model gene level effect measurements as a function of tissue-specific co-expression adjacency matrices.
• Reduced runtime by 40% through MST-based hub detection, improving performance of CoCoNet analysis workflows.

Machine Learning Engineer Intern — Ericsson (May 2024 – Aug 2024)

• Built a full-stack RAG system using Gemma-7B for engineering documentation retrieval.
• Designed embedding pipelines, vector retrieval, and real-time Jira-driven model tuning.

• Delivered a React/Tailwind UI; solution projected to increase productivity by 25% and reduce errors by 35%.

Teaching Assistant — Rice University (Fall 2024)
• Mentored 150+ students in algorithmic reasoning, data structures, and complexity analysis (COMP 382).

PROJECTS:
Autonomous Rocketry Recovery System — Team Lead (Aug 2022 – Present)
• Built autonomous payload navigation (Raspberry Pi + GPS + IMU) guiding descent from 10,000 ft to GPS target.
• Led field testing and iteration cycles within the engineering team.

EDUCATION:
Rice University — Houston, TX
B.S. Computer Science • B.A. Operations Research | Expected Graduation May 2026
Sampling of Coursework: Data Structures & Algorithms, Artificial Intelligence, Probabilistic Algorithms, Graph Theory, Stochastic Modeling, Operations Research, Large-Scale Optimization