ALEXANDER FERRARA

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY — **Atlanta, GA**

B.S. Computer Engineering | M.S. Computer Science

WORK EXPERIENCE

Booz | Allen | Hamilton — **Remote**

Lead AI/ML Engineer | Generative AI — April 2024 – Present

- **Led design and delivery of multi-agent architectures**, including a document co-authoring system (outline-driven, research/compliance loops) and a general-purpose, extensible "Agent-Oriented Architecture" framework later adapted into multiple client applications.
- **Built and deployed cloud-native AI solutions on Azure and AWS**, contributing to an enterprise proposal-writing system with ownership of unstructured data ingestion and retrieval optimization; delivered measurable improvements in accuracy and usability.
- **Provided formal and project-level leadership** as Career Manager for 5 direct reports (mentorship, reviews, compensation) and as Job Leader for another 5-8 engineers across projects, driving execution, code review, and technical mentorship.
- **Modernized and scaled AI platforms**, overhauling a RAG-based Knowledge Assistant and leading continued development of an Intelligent Data Processor for entity extraction, disambiguation, and relation linking with GraphRAG pipelines on AWS.

Cruise — **Remote**

Senior Software Engineer – Embedded Systems, Manufacturing — June 2023 – February 2024

- **Led software enhancements** for manufacturing and health verification of autonomous systems across early development, end-of-line testing, and vehicle service.
- **Developed software in Python, C++, and ROS** (Robot Operating System) for data collection, analysis, and process optimization.

General Motors — **Detroit, MI / Remote**

Senior Design Release Engineer – Autonomous Vehicle Computing — December 2021 – June 2023

- **Provided technical leadership and decision-making** for functional hardware development teams resolving top pressing issues efficiently.
- **Built data processing tools** to analyze large datasets, identifying anomalies during manufacturing and forecasting device reliability, directly informing millions in spend decisions and enabling earlier logistics planning.
- **Applied knowledge gained from autonomous vehicle compute platform design and development** to optimize future compute systems development processes throughout full product development lifecycle.

Design Release Engineer – Autonomous Driving System Computer — June 2019 – November 2021

- **Launched** a new autonomous vehicle computing hardware platform
- **Directed work of multiple international suppliers and cross functional team** efforts including senior engineers and SMEs.
- **Led project activities through design and development lifecycle** from early experimental validation through commercial launch.
- **Identified design, manufacturing, and assembly opportunities** to satisfy vehicle program needs while minimizing cost.
- **Bridged start-up agility with GM enterprise processes**, enabling rapid iteration while meeting strict automotive standards.
- **Negotiated and managed spend** on multimillion-dollar hardware/software development contracts.

Systems Engineer – Connectivity Technologies — November 2018 – May 2019

- **Supported subject matter experts** for technologies including Apple CarPlay, Android Auto, Bluetooth, and Wi-Fi.
- **Led "Advanced Technology Work" project** centered on vehicle data offloading and secure Wi-Fi enablers for V2X applications.
- **Defined system specifications and requirements** for multiple functional modules.
- **Coordinated projection technology certifications** for LG Low Radio Program, collaborating with Apple and Google on infotainment program approvals.

Infotainment Execution Engineer — July 2017 – October 2018

- **Delivered infotainment execution efforts** across ten vehicle programs throughout development lifecycle.
- **Developed software tools** to enhance workflow processes among infotainment and greater electrical community.
- **Conducted Level 1 infotainment support** at Proving Grounds facility providing issue root cause and resolution to ensure launch quality.

Booz | Allen | Hamilton — **Atlanta, GA**

Developer Intern — May 2014 – August 2016

Completed work full-time during summer semesters, as well as half-time throughout primary academic semesters

- **Contributed source code**, primarily focused on full stack web technologies, on eight client applications (federally contracted).
- **Developed for projects throughout each stage of the software performance lifecycle** (EPLC), all utilizing agile methodology.
- **Exemplified leadership and presentation skills** through management consulting-oriented intern case competition over the duration of each summer, winning first place while acting in the role of team leader.

Georgia Institute of Technology **Atlanta, GA**

Undergraduate Teaching Assistant - Digital Design Laboratory August 2015 – December 2015
Facilitated course focused on rapid prototyping of digital systems and FPGA design

Haplit – Georgia Tech Idea to Prototype Program, CreateX Startup Summer August 2015 – May 2017
Multidisciplinary effort to develop a more affordable and durable learning aide for the visually impaired

Freelance Mobile Application Developer November 2015 – August 2016
Independent contract development of a social networking mobile-fist application to connect athletes and organize events

SKILLS & INTERESTS

Core Expertise

- **Generative AI & Agentic Systems:** Multi-agent orchestration (LangGraph), Retrieval-Augmented Generation (RAG/GraphRAG), Document Co-authoring & Intelligent Data Processing Systems
- **Embedded & Automotive Systems:** Autonomous vehicle computing platforms, kernel-level software optimization, C/C++ for high-performance and real-time systems, robotics & sensor fusion, infotainment & connectivity systems
- **Cloud & Infrastructure:** AWS (ECS/Fargate, S3, Bedrock, Neptune, OpenSearch), Azure (AI Search, Container Apps, OpenAI), Docker, Kubernetes, Infrastructure as Code (Terraform, Bicep)
- **Software Engineering & Leadership:** Python (primary), System & API Design, Algorithm Optimization, Technical Program Management, Career & Project Leadership (team management, mentorship, reviews, sprint planning)

Additional Experience

- Full-stack development (FastAPI, React)
- Data Analysis & Modeling (SQL, MATLAB, simulation)
- Digital logic design, VHDL, C#, Java

Achievements: GM Executive Reverse Mentorship Program, GM Vehicle Engineering TRACK Stars Fall 2018, DFSS Black Belt Certification

Hobbies: Skiing, travel, outdoor recreation, software development passion projects, 3D printing (esp when overlapping with SW element!)

RELEVANT COURSEWORK

Undergraduate Studies:
Embedded Computing Systems
Programming Hardware/Software Systems
Architecture, Concurrency, Energy in Computation
Integrated Circuit Fabrication
Capstone Design – Autonomous Boating

Graduate Studies:
High Performance Computer Architecture
Machine Learning for Trading
Artificial Intelligence for Robotics
Computer Networks
Algorithms