

**Steven Duval**  
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## Principal Software Engineer | Technical Lead | Current ML Major

Tech lead and Principal Software Engineer with 9 years of experience building reliable, high-performance systems on agile development teams. Over 7 years of technical leadership, guiding architectural design, code quality, observability, and system performance. Proven technical leader with deep expertise in both object-oriented and functional design, data structures, flexible architectures, data pipelines, and database systems.

Passionate self-starter interested in applying machine learning in the trading domain to solve real-world problems. A strong foundation in mathematics, programming, and investments.

Currently pursuing an M.S. in Computer Science with a focus in Machine Learning (4.0 GPA) at the Georgia Institute of Technology.

### Core Skills

- **Languages & Frameworks:** Java, Python, C, Pandas, SQL, AWS
- **AI/ML & Data Science:** Building ML Models for Trading, ML Pipelines, Neural Nets, Statistical Learning Models, Time-Series Data
- **Systems & Architecture:** Object-Oriented Design, Functional Programming, Data Science Pipelines, Database Systems, Distributed Systems
- **Cloud & DevOps:** AWS (EC2, Lambda, DocumentDB), CI/CD, Observability, Infrastructure as Code
- **Algorithms & Data:** Big O, Hashing, Trees, Queues, Optimization
- **Leadership:** Technical Mentorship, Agile Team Leadership, Architecture Reviews, Effective Communication

### PROFESSIONAL EXPERIENCE

**Liberty Mutual Insurance**  
Principal Software Engineer

***June 2017 - Present***  
*Portsmouth, NH*

- Progressed from Software Engineer to Principal Engineer, demonstrating consistent technical growth and expanding scope of leadership
- Architected and developed Java-based pricing engine APIs that dynamically rate customer insurance policies using telematics and driving behavior data.
- Part of this work includes building a data pipeline to ingest ML models and utilize them in Production. Pipelines built with Apache Spark.
- Leading and mentoring a team of 9 engineers.
- Helping to build and maintain a Python ETL data processing pipeline that picks up changes in a database, validates and cleanses the data, then calls an API for further processing.
- Builds fully asynchronous APIs that provide low-latency responses for external and internal users using technologies like Spring Microservices, WebFlux, AWS lambda, and Kafka.
- Facilitates design decisions for the team as well as code reviews to uphold a flexible code base.

**Liberty Mutual Insurance**  
Business Systems Analyst

***June 2013 – March 2017***  
*Portsmouth, NH*

- Identified and analyzed trends from structured data in production databases as well as unstructured data from customer comments.
- Learned to be proficient in SQL. Considered the subject matter expert for data querying on the eService team.
- Achieved a strong understanding of both the business and technical sides of working on systems, in addition to the abstraction of information that needs to be presented in different scenarios.
- Participated in the gathering and processing of data from A/B tests as well as customer surveys.

## EDUCATION

### **Georgia Institute of Technology**

**January 2025 - Present**

Master of Science in Computer Science | AI/ML

**Current GPA:** 4.0

**Relevant Coursework:** Artificial Intelligence (CS 6601), Machine Learning for Trading (CS 7646), Computing for Data Analysis (CSE 6040), Deterministic Optimization (ISYE 6669), Data Analytics in Business (MGT 6203)

- Built various Machine Learning trading models from scratch including regression, KNN, ensemble boosting models, Reinforcement Learning AI agent. and backtested against both foreign and domestic markets financial time-series data (as part of CS 7646)

### **University of New Hampshire**

**Fall 2009 - Spring 2013**

Whittemore School of Business and Economics | Finance

Durham, NH

**Graduated with Honors**

**Relevant Coursework:** Statistics, Derivative Securities, Quantitative Decision Making, Investment Analysis, Macro/Micro Economics, Finite Mathematics.

### **General Assembly**

**March 2017 - June 2017**

Coding Bootcamp

Boston, MA

**Relevant Coursework:** Learned to build full-stack applications using Ruby, Node, JavaScript, and PostgreSQL. Touched on fundamental computer science concepts such as the OSI model, TCP/IP, and memory management.

## EXTRA-CURRICULAR

- Insatiable reader. Reads mostly investing, math/statistical related textbooks, and philosophy. Currently reading Quantitative Trading by Ernest Chan.
- Love to build machine learning applications and projects with free time. Have worked on a variety of projects including a very simple binary classifier model that analyzes financial data to predict market movement. Also, a project that utilized a Body Tracking AI model to create an athletic judge for competitions.
- Brazilian Jiu Jitsu. Training about 3 times per week for the past 2 plus years.
- Reading state of the art Artificial Intelligence research papers.