Charles Miller

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EXPERIENCE

Goldman Sachs, New York, NY — May 2021 – Present

Vice President - Software Developer

- Author Python programs that transform over 700 million market events per day tailored for regulatory reporting, fees and commissions calculations, and market data analytics
- Manage and enhance repository of codified fee schedules for evolving equity and options exchanges used for generating client bills at competitive turnaround time. Corrected stale components, saving **$166K per month**
- Develop robust analytics platform by normalizing data from 18 sources for meaningful insights into Goldman Sachs' trading, informing optimal execution strategies
- Deliver monthly reports with actionable insights into firm's per-trade costs for partners and clients, highlighting savings opportunities worth over $10K USD per month through trade volume discounts
- Successfully performed Python 2 to 3 migration on critical **Nginx**/**Falcon** API server for historical trades, complete with feature parity, service continuity, and fallback mechanisms
- Modernized invoicing tech stack which uses **Apache Beam** and **Elasticsearch** to a custom Python transformer and **SingleStore**, reducing processing times from five hours to 40 minutes

Verizon Wireless, West Nyack, NY — August 2018 – April 2021

Software Tools Engineer

- Developed and administered software tools used company-wide to aid in 5G and LTE radio deployment
- Led New York office in company-wide migration from a **Salesforce**-based project management tool to an internal tool, saving Verizon **$4M** annually and simplifying its complex two-application workflow
- Simplified and optimized SQL queries for buildout progress dashboard **used by C-Level** executives
- Developed GUI application that compares any two queries from any of **Oracle**, **SQL Server**, or **mySQL** DBs
- Authored automated activation and pipeline health reports using **pandas, Tableau, and Excel Power Query** to provide field leadership Key Performance Indicators on overall buildout objectives
- Created and supported Chrome extensions that reduce daily tedium by 80% - used **thousands of times**

TECHNICAL SKILLS

Current Working Technologies:

• Python	• Java	• SQL	• Apache Spark	• Linux (Cron setup, Service Mgmt/Config)
• Flask	• Git	• Slang (GS)	• nginx	• MS Office (Word, Excel, Powerpoint)
• Pandas	• Elasticsearch	• Lua	• Kafka	• MemSQL (Singlestore)

Previous Working Technologies:

• C++	• C	• C#	• MATLAB	• MongoDB
• Salesforce	• Radio Tech	• PHP	• Apache Thrift	• Tableau

EDUCATION

Binghamton University, Watson School of Engineering — Binghamton, New York

Master of Science in Electrical and Computer Engineering — Graduated: May 2018

Bachelor of Science in Computer Engineering — Graduated: May 2017

Cumulative GPA: 3.8/4.0

Honors: Tau Beta Pi, Eta Kappa Nu, Pi Mu Epsilon

MAJOR PROJECTS

Gaming Server Admin, Self-Directed Study August 2021 – Present

- Administrate a public server for an online racer game - SRB2Kart - with 50 unique monthly active users
- Author **Python** Discord bot that pushes chat logs and gaming activity to Discord channel to monitor for bad actors and abuse
- Published and documented highly configurable game server enhancements in **Lua**, enabling admins to track user behavior, fine tune the map voting algorithm, and automate common tasks
- Created custom map using Doom Builder, netting 2K+ downloads collectively with other addons

Coding Competition Practice, Self-Directed Study April 2020 – March 2021

- Completed and analyzed coding competition problems from LeetCode, HackerRank, and Google Kick Start to further expand knowledge in computer science, software development and problem solving
- Refined algorithms to optimize for space and time
- Documented approaches used and uploaded completed code to GitHub, with **300+ problems** completed to date

Poles and Nodes Database, Verizon Wireless October 2018 – November 2020

- **Full stack** web-based pole and structure tracking application in **Python** with the **Flask** framework, using a **geographically-indexed MongoDB,** with **Apache** to facilitate the planning of **5G** radio deployment
- Architected a **least privilege** user access system with role-based and action-based permission controls
- Designed and built interactive front-end tools with such as map and **geographic search** to help engineers find from **100s of thousands** of tracked poles near their location with **jQuery** calls
- Implemented a secure interface to show pole and RF data in **Google Earth Pro** by serving **KML** data based on viewpoint location

Retina scan ML Condition detection, Binghamton University February – May 2018

- Implemented a **Neural Network** that examined human retina scans to detect illnesses in the eye
- Built network with a combination of **CNN, Pooling**, and **Fully Connected** layers using **TensorFlow**
- Achieved 90% accuracy on Test-Set data in just 1400 iterations and present results to class

LEADERSHIP EXPERIENCE

Contractor Onboarding Mentorship, Verizon Wireless October 2019 – November 2020

- Led new contractor hire in completing tasks critical for nationwide migration of PMO tools
- Introduced new hire to Verizon's PMO system architecture, workflow, conventions, vocabulary, and tools
- Periodically led meetings to discuss current problems, activities, and division of work
- Success of migration project and demonstration of knowledge led to contractor hire for full time position

Explorchestra (College Organization), Binghamton University May 2014 - May 2017

Executive Board - Vice President, Public Relations

- **Administrated orchestra rehearsals** and ensured performance quality by devising and adhering to rehearsal schedules and by **assisting composers lead** rehearsal for each composition on a weekly basis
- Assumed role as **main liaison** between **members** and **Executive Board** when issues between each party arise
- Organized and hosted video game tournament **fundraisers**, totaling an amount of **$1500**