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EXPERIENCE

1130 Lab

Developed a cross-platform Avalonia desktop application, AI processing server and React Javascript frontend website connected to an ASP.NET WebAPI including full authentication. Implemented payment processing and community features. Created a high performance algorithmic trading pipeline in both Python and C# along with a desktop and web dashboard.

.NET Consultant

March 2025 - Present

Avalonia Developed high-performance Windows, MacOS, Linux and mobile applications using Avalonia. Utilized the SukiUI library for Avalonia to implement shaders for more dynamic visuals.

React.js, ASP.NET Worked on both the frontend and backend of websites with React (TypeScript and JavaScript) and ASP.NET.

Algorithm Pipelines Implemented a combined gRPC-based data feed for multiple, simultaneous high-frequency exchange feeds. Python trading scripts were written along with this project. A master ASP.NET server was also created for remote management.

Dockerized AI Servers Utilized the latest AI models for summarization and sentiment analysis of relevant news articles. All components were Dockerized containers, split between a VPS and two local servers.

Payment and CRM Implemented the payment processors PayPal, Stripe, and BTCPayServer (for cryptocurrency). Integrated into CRM (SuiteCRM) for sales users.

Blazor, WASM Developed websites using Blazor as both a server-side renderer and static published WASM client-side applications.

ScalpTrade

Contributed to the development of automated trading algorithms, backend servers and user interfaces. Drove changes in engineering processes to improve development cycle and release quality. Transitioned to a quantitative developer role and developed tools for our market making desk, manually traded and created a trading algorithm.

Quantitative Developer

July 2024 - March 2025

Dash, Pandas, ZeroMQ. Implemented a Python dashboard website for our market making desk to visualize data pulled from various web servers I'd written to calculate complex formulae (replication of the VIX, intraday volatility measurements, cumulative greeks, et al.)

.NET 8, Avalonia HFT algorithm. Wrote a HFT algorithm, performed statistical analysis utilizing our SQL tables to maximize profitability, and implemented a front-end with the Avalonia framework for distributed monitoring and customization of the strategy's parameters.

Senior Software Engineer

March 2023 - July 2024

TCP, UDP, PGM, REST Implemented support for TCP and PGM as a drop-in replacement for an existing UDP data pipeline across the firm. Wrote a WebAPI for passing data through to clients via WebSockets and nginx as middleware. Optimized message format and encoding/decoding to reduce latency in an existing server application.

Architecture and Analysis. Found and resolved severe legacy data issues across the firm. Worked with other engineers and team leads to best design core messaging formats and server configurations. Proposed and implemented an alert feature to notify the engineering team of data faults, pre-market health checks and included statistical analysis in logging for better review and understanding

of our data throughput.

Lead Process Improvements Improved performance of front-end applications and developers by driving process improvement efforts. Effectively rewrote a server application allowing its uptime to span from RTH to GTH with lower latency, CPU and memory load across the board. Lead efforts in establishing staging servers, a "sister-project" approach to code review, and CI/CD pipelines for our team.

DraftKings

Performed extensive code review, participated in design discussions and worked on the backend API that facilitates the NFT Marketplace.

Senior Software Engineer

April 2022 - September 2022

WebAPI + MySQL Extensive use of SQL databases to construct optimized queries for integration into our ASP.NET REST WebAPI endpoints.

Test Driven Development. Took part in the design and discussion of new features. Unit tested and code reviewed extensively before merging. Deep discussions and code reviews were the basis of our commitment to quality.

Cloud (AWS) DevOps Used a suite of backend technologies such as DataDog, AWS monitors, elastic logs, and the locust load testing framework. When on-call, problem-solved critical issues that would arise in features across the Marketplace environment at all hours and over weekends.

Empyrean Solutions

Worked extensively with WinForms and the design, implementation and testing of features related to financial risk management.

Developer

September 2020 - April 2022

WinForms (.NET 4 & 5) Extensive use of WinForms and WinForms-based UI libraries to add new interfaces and debug old ones. Collaborated on the design and implementation of a UI overhaul which included transitioning from .NET 4.5.2 to .NET 5.

Excel Acquired proficiency in using Excel (out of necessity) and using it in C# via Microsoft.Interop.

Asset Liability Management Studied generally the industry of banking with a focus on Asset Liability Management (IRR, Gap Simulations, KRD, etc.) Personally implemented support for daily compounding interest rates to facilitate transition from LIBOR to SOFR.

TeraRecon

At TeraRecon I implemented cross-application and integrated support for Class I & II medical software.

Software Engineer

May 2019 - August 2020

WinForms (.NET 3.5) Extensive use of legacy .NET 3.5 framework in multiple 1m+ LOC codebases.

C++ / ASP.Net Contributed to our core rendering library (OpenGL/C++) and server application (managed C++ layer connecting ASP.Net solution.)

TeraRecon (cont.)

DICOM Imaging and Processes Deep knowledge of the DICOM image format to implement features and debug issues related to medical imaging processes (MRI, CT and CAT)

Delsys, Inc.

Developed software to improve or facilitate manufacturing processes of EMG sensors (Class II medical devices.)

Software Engineer

August 2017 – May 2019

Azure/ASP.NET Development Used ASP.NET to create web pages for test reports (required use of XHTML, sometimes JavaScript, and the backend C# to construct.) Created several test software that made use of Azure Web Services to update testing SQL databases.

WPF & Graphics Developed a streamlined API for plotting based on SciCharts which made heavy use of WPF (.NET 4.6+) using the MVVM design pattern.

A/D Cards & National Instruments Created several software which use the National Instruments development libraries to communicate with our test fixtures via A/D cards.

.NET/USB/Bluetooth After eight months of significant contributions to our API I was made lead on the project. This included implementing Bluetooth Low Energy support for our hardware on Windows, guiding an intern in implementing iOS support, troubleshooting and improving our USB interface code, engaging with and assisting customers and following the necessary protocols for distribution.

TECHNICAL

Languages: C#, Python, C++, JavaScript, SQL

Frameworks: .NET, ASP.NET, protobuf, ZeroMQ/NetMQ, React, MSTest, Moq, SciCharts, Unity, DevExpress/ComponentOne/Telerik, SDL2

Cloud: Azure, AWS

Other Expertise: Bluetooth Low Energy, National Instruments libraries, Medical Imaging (DICOM), Equity and Options Market Making/Arbitrage, Asset Liability Management

EDUCATION

University of Rhode Island Kingston, RI

B.S Computer Science (Magna Cum Laude)

- Selected for the Competitive Programming Team
- Graduate level coursework in machine learning, computational statistics and programming language semantics. Developed a language for creating Cellular Automata called [LifeScript](#).
- Coursework equivalent to a minor in statistics which was not offered by URI at the time.

ACTIVITIES

Software Consulting (part-time)

January 2023 - July 2023

Managing a team of SWE to ensure quality.

- Regularly reviewed code to ensure quality, readability and reusability.
- Communicated deadlines and requirements, provided guidance on technical issues and worked with clients to balance technical blockers with time restraints.

Automated Market Making

Developed cryptocurrency market makers for various exchanges. Went live in July of 2024. Ideas drawn from the micro price algorithm and time and sales directionality.