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Education

University of Vermont

MS in Computer Science

Burlington, VT

2016 - 2018 (expected)

- Supported by graduate teaching assistantship, currently assisting with programming languages and modeling complex systems
- Develop software for use on high-performance computing cluster (Vermont Advanced Computing Core)
- Teach graduate students software engineering principles and Linux system administration

University of Vermont

BS in Computer Science

Burlington, VT

2012 - 2015

Experience

MITRE

Computer Science Graduate Fellow

Burlington, VT

June 2017 - Present

Analyze petabyte-level financial data to understand interactions between particular high frequency trading strategies and market micro-structure in the National Market System (NMS).

- Design and implement algorithms to quantify effects of latency arbitrage
- Use efficient and scalable tools, techniques to process data and extract actionable insights
- Understand implications of regulatory statutes (e.g. Reg. NMS) on market participant behavior and trading venue policy

LORD MicroStrain Sensing Systems

Software Engineering Intern

Burlington, VT

Summer 2013, May 2014 - January 2017

Sole developer responsible for maintaining and extending the firmware of Lord Sensing's Wireless Sensor Data Aggregator (WSDA) product line. WSDAs collect data from various sensor nodes then process and securely upload the information to Lord's SensorCloud platform.

Select Projects

Evolving Options Trading Strategies

December 2016 - August 2017

Evolved strategies that trade diverse financial instruments using a Age-Fitness Pareto Optimization (AFPO) driven genetic programming scheme that maximizes profits.

Adversarial Neural Cryptography

November 2017 - December 2017

Replicated and extended "Learning to Protect Communications with Adversarial Neural Cryptography".

Twitter Event Detection

August 2017 - Present

Used information theoretic techniques (e.g. entropy, word-shifts) to autonomously detect important events and extract their prevailing narrative.

Technical Summary

- **Expertise:** Data Structures and Algorithm Design, Complex System Analysis and Modeling, Computer Security, High-Performance Computing, Formal Verification, Machine Learning, Natural Language Processing
- **Programming Languages:** C++, Python, OCaml, Bash, MATLAB, Web Stack
- **Development Tools:** Git, Boost, SciPy Ecosystem, Keras, CMake, GCC, L^AT_EX, Doxygen
- **UVM Affiliations:** Complex Systems Center, Computational Story Lab, Computer Security Lab