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Mathematician and Developer  
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## Education

- **Westminster College** Westminster College  
*Bachelor of Science in Mathematics and Financial Economics* *Aug. 2015 - Present*
  - Minor in Computer Science
  - All-College Honors Program, Kappa Mu Epsilon (Math Honors), Men's Choir, Omicron Kappa Sigma (All-College Honors), Pi Sigma Pi (All-College Honors), and Secretary of Robotics Team
  - Honors Thesis: An Exploration of the Topological and Logical Properties of Hierarchical Temporal Memory Networks

## Professional Experience

- **Computer Support Specialist and Software Engineer** New Wilmington, PA  
*Titan Radio and WCN 24/7* *May 2018 - Present*
  - Responsible for the servers, virtual machines, computers, and streams required to keep the radio and television station operating.
  - Wrote software to update the Titan Radio weather conditions and weather forecast while no one was on the air.
- **Financial Analyst** New Wilmington, PA  
*Program with Moody's Investors Service VP Ben Nelson* *December 2017 - Present*
  - My focus was in economic indicators, looking for Granger Causality and correlations in order to attempt to build a reasonable model of PPGs earnings.
  - Our team ultimately came up with a credit rating along with a bond and stock recommendation which we presented to a panel of experts.
- **Software Engineer** Portland, NY  
*Self Employed* *August 2016 - Present*
  - I write applications, software, and web solutions in a variety of languages.
  - My work includes software for autonomous robotics, servers, smart contracts, Android applications, mathematics libraries, and a variety of computational finance software.
- **Fund Assistant Manager** New Wilmington, PA  
*Westminster College Endowment Fund* *January 2016 - Present*
  - I lead a team of students to research investment opportunities and make decisions for \$160,000 of Westminsters Endowment Fund.
  - I am responsible for dissecting financial statements, conducting fundamental analysis, and seeking out high potential, undervalued tech companies.
  - Our equity portfolio has outperformed the S&P 500 while maintaining a beta of one during the time that I held this position.
- **Teaching Assistant and Tutor** New Wilmington, PA  
*Westminster College* *August 2015 - Present*
  - Westminster's Division of Cognitive and Quantitative Sciences selected me during my first year to tutor students and serve as a teaching assistant in mathematics and computer science.
  - I assisted professors in grading, working with students individually, and developing curriculum for classes covering coursework in Calculus, Computer Science, and Operations Research.

- **Research Assistant**

*Dr. Charles Shaffer*

New Wilmington, PA  
January 2016 - May 2018

- I worked with Dr. Shaffer to integrate cryptocurrency trading into his algorithmic currency trading application.
- We explored inefficiencies between exchanges and backtested technical strategies such as Donchian Channels and Bollinger Bands on Bitcoin, Ethereum, and Litecoin.

## Research and Projects

### Honors Research

*Supervised by a Board of Advisors*

Fall 2017 - Present  
*Westminster College*

- My proposal was entitled “An Exploration of the Topological and Logical Properties of Hierarchical Temporal Memory Networks” and was accepted by my Honors Board
- I am hoping to improve on Semantic Folding Theory and the encoding and decoding mechanisms of HTM
- My research will also focus on attempting to use fuzzy logic and soft computing to improve the performance or forecasting ability of HTMs

### Trinity Firefighting Contest

*Westminster Robotics Club*

August 2017 - April 2018  
*Westminster College*

- Built and programmed an autonomous robot to tackle various challenges at the Trinity Firefighting Contest including putting out candles, navigating a maze, and rescuing a baby doll.
- My team won the Best Robot in Division Prize for the Senior, Unique Division and the North America Award for Level 2.

### Blockchain Technology

*Supervised by Dr. John Bonomo*

Spring 2018  
*Westminster College*

- Explored the technical details of blockchain technology including Elliptic Curve Cryptography, Network Flow Analysis, and Data Structure alternatives to a Merkle Chain
- Developed in smart contracts and decentralized applications
- Presented my research and decentralized application at Westminster’s Undergraduate Research and Arts Festival

### Optimizing Throughput, Cost, and Safety in Toll Booth Plazas

*COMAP International Mathematical Modelling Competition*

January 2017  
*Westminster College*

- Lead a team of mathematicians over a single weekend in an international mathematics competition to produce a 20-page research paper and draft a proposal to the New Jersey Turnpike Authority
- Received Honorable Mention for our solution, placing us in the top 13 in the United States
- Presented at 2017 Pi Mu Epsilon Regional Conference

## Skills

**Languages:** Bash, C++, Java, Python, R, Solidity

**Computer Science:** Artificial Intelligence, Computational Finance, Robotics

**Finance and Economics:** Corporate Credit Analysis, Econometrics

**Software Engineering:** Debugging, Test-First Development, Version Control