

Alexander C. Michels  
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Mathematician and Computer Scientist  
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## Education

- **Westminster College** New Wilmington, PA
  - *Bachelor of Science in Mathematics and Financial Economics* August 2015 - May 2019
    - 3.7 GPA; Minor in Computer Science
    - Honors Thesis in Hierarchical Temporal Memory focused on A.I. and Time Series Analysis
    - **Extra-Curriculars:** Endowment Fund, Honors Program, Financial Analyst Program, Kappa Mu Epsilon, Men's Choir, Omicron Kappa Sigma, Pi Sigma Pi, and Secretary of Robotics Team

## Professional Experience

- **Informatics Researcher** Los Angeles, CA
  - *Institute for Pure and Applied Mathematics at UCLA / Praedicat, Inc.* June 2018 - August 2018
    - Worked for Praedicat, Inc. automating information extraction, classification, and aggregation from unstructured web data for business profiling of over 52,600 companies and corporate entities.
- **Software Engineer and Systems Administrator** New Wilmington, PA
  - *Titan Radio and WCN 24/7* May 2018 - Present
    - Responsible for the technology that keeps the station operating including writing [software solutions](#).
- **Information Technology Intern** New Castle, PA
  - *Treloar & Heisel* September 2018 - Present
    - Worked with databases and developed applications in Java, Python, and Visual Basic.
- **Financial Analyst** Various
  - *Program with Moody's Investors Service VP Ben Nelson* December 2017 - Present
    - Presented a credit rating along with bond and stock recommendations to a panel of experts.
- **Computational Finance Research Assistant** New Wilmington, PA
  - *Dr. Charles Shaffer* January 2017 - May 2018
    - Explored inefficiencies between cryptocurrency exchanges and backtested technical strategies such as Donchian Channels and Bollinger Bands on Bitcoin, Ethereum, and Litecoin.

## Research

- **Using ARIMA Models to Capture the Predictive Power of Hierarchical Temporal Memory** December 2017 - Present
  - [Ongoing research](#) in computational neuroscience, specifically HTMs modeled after the neocortex.
- **Computational Fact-Checking through Relational Similarity based Path Mining** July 2018 - Present
  - Presented our work at IPAM, will be presenting at [2019 Joint Mathematics Meeting](#), and [continually optimizing](#) in the hopes of publishing

## Conferences and Talks

- **"Computational Fact-Checking through Knowledge Graphs"** January 2019
  - *AMS Contributed Paper Session at 2019 Joint Mathematics Meeting* Los Angeles, CA
- **"Information Extraction and Aggregation for Business Profiling"** July 2018
  - *Invited Talk at Institute for Pure and Applied Mathematics* Los Angeles, CA
- **"Decentralizing the World with Blockchain"** April 2018
  - *Undergraduate Research & Arts Celebration* New Wilmington, PA
- **"Repeated Play Games"** April 2017
  - *MAA, Allegheny Mountain Section Meeting* Pittsburgh, PA
- **"Optimizing Throughput, Cost, and Safety in Toll Booth Plazas"** February 2017
  - *Pi Mu Epsilon Regional Conference* Youngstown, OH

## Awards

- **Best Robot in Division Prize for Senior Unique Division** April 2018  
“Robot in the Division with the lowest Total Final Scores” *Trinity Fire Fighting Robot Contest*
- **North America Award for Level 2** April 2018  
“The top North American robot in Level 2” *Trinity Fire Fighting Robot Contest*
- **Dr. Thomas R. Nealeigh Mathematics Scholarship** March 2018  
“awarded to an outstanding junior or senior mathematics major” *Westminster College*
- **Paul E. Brown Memorial Scholarship** March 2017  
“given based on merit and academic achievement” *Westminster College*
- **Honorable Mention** January 2018  
“excellent modeling and sensitivity analysis” *COMAP International Mathematical Modeling Competition*
- **Mathematics Book Award** March 2017  
“presented to the sophomore Mathematics major with the highest GPA” *Westminster College*

## Skills

**Computer Science:** Parallel Programming, Robotics, Software Engineering, System Administration, Virtualization, Web Development

**Data Science:** A.I., Big Data, Cognitive Computing, Information Extraction, Machine Learning

**Finance and Economics:** Algorithmic Trading, Corporate Credit Analysis, GAAP, Risk Analysis

**Languages:** Python (and Cython), Java, C++, Bash, R, HTML, CSS, XML, Javascript, SQL, Visual Basic

**Software & Tools:** AWS, Google Cloud, NLTK, Numpy, Pandas, scikit-learn, Selenium