**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.
- **Systems Administrator and Software Engineer** — New Wilmington, PA
  *Titan Radio and WCN 24/7* — *May 2018 - Present*
  - Overhauled network, oversaw purchasing, and wrote 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 2017
  *"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