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 Internation 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