

# Alexander C. Michels

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## Education

### University of Illinois at Urbana-Champaign

*Ph.D. in Informatics*

– Pursuing the Spatial Informatics concentration under Dr. Shaowen Wang

Champaign, IL

June 2019-Present

### Westminster College

*Bachelor of Science in Mathematics and Financial Economics*

– Honors Thesis: “Capturing the Predictive Power of Cortical Learning Algorithms”

– Minor in Computer Science — Graduated Cum Laude — Honors in Computer Science and Math — 3.7 GPA

New Wilmington, PA

August 2015 - May 2019

## Experience

### Geographic Information Science Researcher

*CyberGIS Center and CyberInfrastructure & Geospatial Information Laboratory (CIGI)*

- Conducting spatial informatics research under Dr. Shaowen Wang.
- Primarily working in Algorithms and Systems, building and maintaining the cyberinfrastructure and programming solutions to computational problems.

Champaign, IL

June 2019-Present

### Informatics Researcher

*Institute for Pure and Applied Mathematics at UCLA / Praedicat, Inc.*

- Worked for Praedicat, Inc. automating information extraction, classification, and aggregation from web data for business profiling of over 52,600 companies and corporate entities.
- Worked for IPAM to develop a novel algorithm for computational fact-checking on knowledge graphs and a self-supervised machine learning algorithm for sentence importance which outperformed TF-IDF.

Los Angeles, CA

June 2018 - August 2018

### Systems Administrator and Software Engineer

*Titan Radio and WCN 24/7*

- Responsible for the servers, streams, VMs, and other technology that keeps the Broadcasting Department including radio and television station operating.

New Wilmington, PA

May 2018 - May 2019

### Information Technology Intern

*Treloar & Heisel*

- Maintained databases and wrote applications for company use in Java, Python, and Visual Basic.

New Castle, PA

September 2018 - December 2018

### Teaching Assistant and Tutor

*Westminster College*

- Assisted professors in grading, working with students individually, and developing curriculum for classes covering coursework in Calculus, Computer Science, and Operations Research.

New Wilmington, PA

August 2015 - December 2018

### Computational Finance Research Assistant

*Dr. Charles Shaffer*

- Integrated cryptocurrency trading into Dr. Shaffer’s algorithmic currency trading application.

New Wilmington, PA

January 2017 - May 2018

## Papers

- [1] A. C. Michels, “Capturing the predictive power of cortical learning algorithms,” May 2019. Bachelor’s thesis.
- [2] H. Ahuja and A. C. Michels, “Computational fact-checking through relational similarity based path mining,” Jan 2019. AMS Contributed Paper Session at the 2019 Joint Mathematics Meeting.
- [3] H. Ahuja, A. C. Michels, and L. Shi, “Information extraction and aggregation from unstructured web data for business profiling,” tech. rep., Institute for Pure and Applied Mathematics and Praedicat, Inc., Los Angeles, California, Aug 2018.

## Selected Presentations

### **“Capturing the Predictive Power of Cortical Learning Algorithms”**

*National Conference on Undergraduate Research*

April 2019

♥ Atlanta, GA

### **“Computational Fact-Checking through Knowledge Graphs”**

*AMS Contributed Paper Session at 2019 Joint Mathematics Meeting*

January 2019

♥ Baltimore, MD

### **“Information Extraction and Aggregation for Business Profiling”**

*Invited Talk at Praedicat, Inc.*

August 2018

♥ Los Angeles, CA

### **“Information Extraction and Aggregation for Business Profiling”**

*Invited Talk at Institute for Pure and Applied Mathematics*

July 2018

♥ Los Angeles, CA

### **“Decentralizing the World with Blockchain”**

*Undergraduate Research & Arts Celebration*

April 2018

♥ New Wilmington, PA

### **“Repeated Play Games”**

*MAA, Allegheny Mountain Section Meeting*

April 2017

♥ Pittsburgh, PA

### **“Agent-Based Simulations for Repeated Play Game Theory”**

*Undergraduate Research & Arts Celebration*

April 2017

♥ New Wilmington, PA

### **“Optimizing Throughput, Cost, and Safety in Toll Booth Plazas”**

*Pi Mu Epsilon Regional Conference*

February 2017

♥ Youngstown, OH

## Awards

### **UCGIS Prize for Advances in Geospatial Problem Solving**

*“Advancing Reproducibility in Geospatial Research at the AAG-UCGIS Summer School 2019”*

July 2019

UIUC

### **Best Robot in Division Prize for Senior Unique Division**

*“Robot in the Division with the lowest Total Final Scores”*

April 2018

Trinity Fire Fighting Robot Contest

### **North America Award for Level 2**

*“The top North American robot in Level 2”*

April 2018

Trinity Fire Fighting Robot Contest

### **Dr. Thomas R. Nealeigh Mathematics Scholarship**

*“awarded to an outstanding junior or senior mathematics major”*

March 2018

Westminster College

### **Paul E. Brown Memorial Scholarship**

*“given based on merit and academic achievement”*

March 2017

Westminster College

### **Honorable Mention**

*“excellent modeling and sensitivity analysis”*

January 2017

COMAP International Mathematical Modeling Competition

### **Mathematics Book Award**

*“presented to the sophomore Mathematics major with the highest GPA”*

March 2017

Westminster College