

# Michael R. Schwob

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🌐 michaelschwob

## EDUCATION

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**University of Nevada, Las Vegas - Honors College**  
*B.S. in Mathematics*

**Las Vegas, NV**  
*May 2021*

## EXPERIENCE

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### **United States Geological Survey**

*Research Assistant*

**Fort Collins, Colorado**

*June 2020 – Present*

- Helped design a stochastic agent-based model with hidden semi-Markov mechanics
- Implemented a surrogate model to aid in the analysis of SARS-CoV-2 data
- Contributed to an accepted manuscript with *International Statistical Review*

### **Big Data Hub**

*Research Scientist*

**Las Vegas, Nevada**

*August 2017 – June 2020*

- Managed interdisciplinary research teams and drafted manuscripts for multiple research projects
- Developed a novel mathematical framework and algorithm to dynamically model cellular communication using hypergraph theory
- Implemented hypergraphs to big knowledge networks to create a highly connected cancer treatment network, determining the optimal position for treatment centers

### **UNLV Department of Physics and Astronomy**

*Undergraduate Researcher*

**Las Vegas, Nevada**

*October 2018 – February 2020*

- Implemented n-body astrophysical simulations for Kozai-Lidov oscillation analysis
- Conducted broad literature reviews to support the research laboratory's activities
- Translated C++ code to Rebound for use in laboratory research

### **UNLV Department of Economics**

*Undergraduate Researcher*

**Las Vegas, Nevada**

*February 2017 – October 2019*

- Collected time-series data for ride-sharing platforms and analyzed spatio-temporal correlations
- Spatially visualized the correlation between the presence of organized hate groups and hate crimes
- Managed data for the Gig economy for use in multiple publications

### **Air Force Research Laboratory**

*Research Assistant*

**Dayton, Ohio**

*May 2019 – August 2019*

- Managed a team of undergraduate researchers and drafted a manuscript for publication
- Developed multiple hybrid neural networks to analyze multimodal physiological data for anomaly detection
- Formulated a mathematical framework that supports the integration of existing and novel neural architectures

### **Army Education Outreach Program**

*Mentor*

**Las Vegas, Nevada**

*May 2018 – August 2018*

- Mentored local high school teachers and students while developing a novel biostatistical solution
- Taught several lectures in programming, statistics, and neural networks
- Published a manuscript on resolving intravoxel white matter using deep learning techniques

### **William F. Harrah College of Hospitality**

*Researcher*

**Las Vegas, Nevada**

*May 2018 – August 2018*

- Surveyed data scientists in the hospitality industry regarding education, skills, and industry standards
- Visualized data for a hospitality report that discusses the present and future of hospitality analytics
- Assisted in curriculum design for hospitality analytics in the William F. Harrah College of Hospitality

## PUBLICATIONS

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- M Hooten, C Wikle, **MR Schwob**. "Statistical Implementations of Agent-based Demographic Models," Accepted: *International Statistical Review*.
- **MR Schwob**, A Dempsey, F Zhan, J Zhan, A Mehmood. "Robust Multimodal Biometric Analysis Using Hybrid Neural Networks," *IEEE Access* (2020).
- **MR Schwob**, J Zhan, A Dempsey. "Modeling Cell Communication with Time-Dependent Signaling Hypergraphs," *IEEE/ACM Transactions on Computational Biology and Bioinformatics- Early Access* (2019).
- A Hart, B Smith, S Smith, E Sales, J Hernandez-Camargo, Y Mayor Garcia, F Zhan, L Griswold, B Dunkelberger, **MR Schwob**, S Chaudhry, J Zhan, L Gewali, P Oh. "Resolving intravoxel white matter structures in the human brain using regularized regression and clustering," *Journal of Big Data*, 6:61 (2019).

## PRESENTATIONS

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- Paper Presentation, "Robust Multimodal Biometric Analysis Using Hybrid Neural Networks," *Autonomy Technology Research – AFRL Presentations*, August 2019.
- Paper Presentation, "Mapping Neural Pathways Using Statistical Theory," *Honors & Research Symposium*, November 2018.
- Paper Presentation, "Resolving Intravoxel White Matter with Bayesian Statistics," *American Statistical Association's Nevada Annual Research Symposium*, October 2018.

## SPEECHES

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- Keynote Speaker, "UNLV Honors + Research Symposium," October 2019.

## AWARDS & ACHIEVEMENTS

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- **2020 Goldwater Scholar**
- **2019 Goldwater Scholar**
- **2018 Undergraduate Researcher of the Year - UNLV**
- **2018 Congressional Award**
- **2018 UNLV Sophomore of the Year**
- **UNLV Excellence Scholarship**
- **Governor Guinn Millennium Scholarship**
- **Frank A DiCicco Endowed Scholarship**

## VOLUNTEER SERVICE

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- **Army Education Outreach Program:** *coordinated a summer research project in STEM with local high school teachers and students*
- **Tutoring:** *committed five hours a week to provide free tutoring in mathematics and statistics to local college and high school students*
- **Conference Service:** *volunteered to work for many local conferences, including the American Statistical Association Nevada Symposium, UNLV Honors & Research Symposium, and State of Data Science in Las Vegas*

## ORGANIZATIONS

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- **American Statistical Association (ASA)** *Student Member*
- **UNLV ASA Student Chapter** *Founder and President*
- **The House: UNLV Economics** *Founder and President of Undergraduate Research*
- **Data Science Innovated** *Undergraduate Coordinator*
- **Urban Economics Association** *Student Member*
- **Omicron Delta Epsilon** *Student Member*
- **Phi Kappa Phi** *Student Member*
- **Mu Alpha Theta** *Student Member*
- **American Economic Association** *Student Member*