Michael R. Schwob

🌐 mrschwob.com   michaelschwob

EDUCATION

University of Nevada, Las Vegas - Honors College   **Las Vegas, NV**
B.S. in Mathematics (GPA: 3.96)   *May 2021*

EXPERIENCE

Colorado Cooperative Fish and Wildlife Research Unit   **Fort Collins, Colorado**
Research Assistant   *June 2020 – August 2020*
- Helped design a stochastic agent-based model with hidden semi-Markov dynamics
- Implemented a surrogate model to aid in the analysis of SARS-CoV-2 data
- Contributed to a published manuscript with *International Statistical Review*

Big Data Hub   **Las Vegas, Nevada**
Research Scientist   *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

Air Force Research Laboratory   **Dayton, Ohio**
Research Assistant   *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

UNLV Department of Physics and Astronomy   **Las Vegas, Nevada**
Undergraduate Researcher   *October 2018 – July 2019*
- 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   **Las Vegas, Nevada**
Undergraduate Researcher   *February 2017 – July 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 Gig economy data for use in multiple publications

Army Education Outreach Program   **Las Vegas, Nevada**
Mentor   *May 2018 – August 2018*
- Mentored local high school teachers and students while developing a novel biostatistical method
- 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   **Las Vegas, Nevada**
Researcher   *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

- M Hooten, **MR Schwob**, D Johnson. "Spatial Copula Capture-Recapture Models," *In Review*.
- M Hooten, C Wikle, **MR Schwob**. "Statistical Implementations of Agent-based Demographic Models," *International Statistical Review*, 88:2 (2020).
- **MR Schwob**, A Dempsey, F Zhan, J Zhan, A Mehmood. "Robust Multimodal Heartbeat Detection 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

- Co-author, "Statistical Implementations of Demographic Agent-based Models," *Joint Statistical Meetings*, August 2020.
- Paper Presentation, "Robust Multimodal Heartbeat Detection 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 & SEMINARS

- Seminar, "How to Get into Research Programs," *UNLV Honors College*, October 2020.
- Keynote Speaker, "The Benefits of Conducting Research", *UNLV Honors + Research Symposium*, October 2019.

AWARDS & ACHIEVEMENTS

- **Goldwater Scholar** - The Barry Goldwater Scholarship and Excellence in Education Foundation (2019-2020, 2020-2021)
- **Congressional Award** - United States Congress (2018)
- **Undergraduate Researcher of the Year** - UNLV (2019)
- **Sophomore of the Year** - UNLV (2018)
- **Excellence Scholarship** - UNLV (2016-2021)
- **Governor Guinn Millennium Scholarship** - Nevada State's Treasurer Office (2016-2021)
- **Bhatnagar Mathematics Award** - UNLV (2020-2021)
- **Chris McNamee Memorial Scholarship** - UNLV (2020-2021)
- **Sands Sustainability Scholarship** - UNLV (2020-2021)
- **Frank A DiCicco Endowed Scholarship** - UNLV (2019-2020)
- **Brenda and Russell L. Frank Honors Scholarship** - UNLV (2019-2020)

VOLUNTEER SERVICE

- **Army Education Outreach Program:** *coordinated a summer research project in STEM with local high school teachers and students* (2017)
- **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* (2017-2020)
- **Tutoring:** *committed five hours a week to provide free tutoring in mathematics and statistics to local college and high school students* (2017-2020)

ORGANIZATIONS

- **American Economic Association** *Student Member*
- **American Statistical Association (ASA)** *Student Member*
- **Omicron Delta Epsilon - National Economics Honor Society** *Student Member*
- **Phi Kappa Phi - National Honor Society** *Student Member*
- **Pi Mu Epsilon - National Mathematics Honor Society** *Student Member*
- **UNLV ASA Student Chapter** *Founder and President*
- **UNLV Data Science Innovated** *Undergraduate Coordinator*
- **UNLV Economics Undergraduate Research Collective** *Founder and President*
- **UNLV Soccer Club** *Student Member*