1424 S Terrace Rd.
Tempe, Arizona 85281
(480) 323 5944
ryan.theisen@asu.edu
ryantheisen.com

Ryan C. Theisen

About

I am currently a Masters student in Mathematics at Arizona State University, interested in understanding how and why deep learning works, and how a stronger theoretical understanding can be transformed into novel techniques.

Education

2018 **M.A. Mathematics**, *Arizona State University*.
Luminosity Fellowship (full funding with stipend)

2017 **B.S. Mathematics, B.S. Economics**, *Arizona State University*.
Phi Beta Kappa, Summa Cum Laude, GPA: 4.0/4.0

Awards and Honors

Fulbright Scholarship, *University of Bristol, England*, UK Summer Institute for Young American Student Leaders.
Researched economic drivers of trans-Atlantic slave trade during mid-eighteenth century.

Dean's Medal - Mathematics, *Arizona State University*.
Awarded as outstanding graduating senior in School of Mathematical and Statistical Sciences.

Dean's Medal - Economics, *Arizona State University*.
Awarded as outstanding graduating senior in Department of Economics.

Moeur Award, *Arizona State University*.
Granted University-wide academic distinction at graduation.

J.P. Morgan Chase Scholar, *Arizona State University*, Department of Economics.
Awarded prestigious fellowship for top economics undergraduates.

MCTP Grant, *NSF Research Experience for Undergraduates*, Arizona State University.
Awarded stipend to conduct applied mathematics research under Dr. Sebastien Motsch.

Research

Current Projects

Project Guide. Leading team of machine learning and hardware engineers to develop a haptic-based guidance system for the visually impaired. Includes research in reinforcement learning, path finding, computer vision and human-computer interaction. In partnership with Luminosity Lab and ASU's Center for Cognitive Ubiquitous Computing (https://cubic.asu.edu/).

Papers

[1] Motsch, S., Reamy, A., Theisen, R., Stokes, M. *Asymptotic Flocking for the Three-Zone Model* 2016. (Preprint available at ryantheisen.com/flocking_paper.pdf.)
We prove the asymptotic flocking behavior for a general system of swarming agents, expanding the analysis of the so-called Cucker-Smale model (2005).

Employment

Fall 2016–Fall 2017 **Amazon.com**, *Senior Data Analyst*, Tempe, AZ (Remote).
Build statistical models in Python and R to aid in staffing plan of over 2,000 customer service associates. Built optimization software using Pyomo to optimally staff and schedule Amazon customer service agents, with Flask web front-end. This tool is currently used to schedule the entire Amazon customer service network and is supported by a team of full-time developers.

2016–Present **Veratox, LLC**, *Co-Founder, Director of Data Science*, Tempe, AZ.
Co-founded technology consultancy specializing in data science and web design. Contracted with Senator Jeff Flake to handle all campaign web services and data analytics. Contracted with The Wolff Company to design advanced predictive software for real estate investment.

2016–Present **The Luminosity Lab**, *Researcher*, Arizona State University.
Work on team of top graduate and undergraduate students to design and develop new technologies to improve ASU student experience. Projects include developing the open education platform Mindspark.io, developing smart mirror technologies, and building a haptic-based guidance system for the visually impaired.

Summer 2016 **Amazon.com**, *Operations Intern*, Seattle, WA.
Worked on project to hire remote, unscheduled associates for temporally variant spikes in customer service calls. Used various statistical techniques to develop predictive models for flexibility in the customer service network.

2014–Present **Department of Economics**, *Teaching Assistant*, Arizona State University.
Teaching Assistant for Intermediate Microeconomics and Principals of Microeconomics.

Fall 2015 **Apriva**, *Statistical Analyst*, Scottsdale, AZ.
Served as company's only statistical analyst, using a number of techniques to analyze business performance.

Leadership Experience

2016 **Lambda Chi Alpha Fraternity - Zeta Psi Chapter**, *President*, Arizona State University.
Elected to lead chapter of over one hundred members and manage a budget of more than $150,000 annually.

2012–Present **Kino Border Initiative**, *Volunteer / Group Founder*, Nogales, Mexico.
Founded club that leads student groups to Nogales, Mexico to educate them on immigration-related issues. Taught seminar on immigration and income inequality at annual Summit on Human Dignity at local high school.

Advanced Coursework

Graduate

Real Analysis (I and II), Functional Analysis I, Distribution Theory, Theory of NP Completeness, Linear Operators, Probability and Stochastic Processes, Nonparametric Statistics, Multivariate Statistical Analysis.

Undergraduate

Topology, Advanced Calculus, Linear Algebra, Econometrics, Advanced Honors Macroeconomics, Advanced Honors Microeconomics.

Self-Study

Deep Learning by Goodfellow and Bengio; *Elements of Statistical Learning* by Hastie, Tibshirani and Friedman; *A Book of Abstract Algebra* by Pinter

Conferences and Presentations

[1] (2016) Joint Mathematics Meetings – Seattle, WA: *A Model of Flocking in Three Zones*

[2] (2017) Society for International Development Annual Meeting – Washington, D.C.: *Mindspark: An Open Education Platform*

Skills

Programming	Python (PyTorch, Tensorflow, Keras, SKLearn, Pyomo, Flask, Plotly), R, Julia, LaTeX, SQL, MATLAB, HTML, CSS, Javascript
Languages	English, Spanish (elementary proficiency)
Areas	Machine Learning, Mathematics, Statistics, Economics

Interests

Green Bay Packers, Photography, Mountaineering, Rock Climbing, Golf, Arsenal FC, The West Wing, Monetary Economics, Late Bronze Age History, Traveling