



# LANE LEWIS

## UNDERGRADUATE IN MATH AND NEUROSCIENCE

### CONTACT DETAILS

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AZ 85716

### RESEARCH INTERESTS

Computational Neuroscience

Computational Psychology

Machine Learning and AI

### PROGRAMMING SKILLS

Intermediate Proficiency in:  
Python, Javascript/HTML, and R

Experience With:  
AWS, Github, Docker, SQL, Nodejs

### AWARDS

2018, 2019 Putnam Competition Award

David Lomen Excellence in Mathematics  
Award

James R. Bunch Scholarship

### CLASSES SAMPLE

Theory of Statistics

Real Analysis

Neurophysiology

### PERSONAL INTERESTS

Rock Climbing, Jazz Piano, Cooking

### ACADEMIC CAREER

#### UNIVERSITY OF ARIZONA (FALL 2018 - )

Double majoring in Comprehensive Mathematics and Neuroscience and Cognitive Science with a minor in Information Science. Honors College, GPA: 3.92. Expected graduation date: Spring of 2022.

#### STEVENSVILLE PUBLIC HIGH SCHOOL (2013-2017)

GPA: 3.72. Class rank 3/72. SAT 1450.

### RESEARCH EXPERIENCE

#### COMPUTATIONAL NEUROSCIENCE RESEARCH

*Under mentor Professor Zhang-Molina, Independent Project (Fall 2019 - )*

- Researched post-inhibitory rebound-like effects in coupled integrate and fire neurons
- Analyzed highly nonlinear coupled differential equations and recursive maps

#### COMPUTATIONAL NEUROSCIENCE RESEARCH

*Through The NRD Lab, Independent Project (Spring 2020 - ), Summer 2020*

- Researched how to implement a multidimensional Kalman filter into a biologically plausible attractor neural network
- Independently investigated and applied modern theories of neural population dynamics

#### PSYCHOLOGY OF DECISION MAKING RESEARCH

*Through The NRD Lab, under mentor Jack-Morgan Mizell (Fall 2019 -Spring 2020)*

- Researched directed versus random exploration in various experiments to develop a more robust description of how noise affects decision making in humans
- Helped build a data pipeline for efficient data collection

### PROJECTS

#### ONLINE EXPERIMENT PLATFORM DEVELOPMENT

*Project Lead and Developer (Fall 2020 - ), For The NRD Lab*

- Developed an online experiment platform for The NRD Lab to run human subjects in a cost effective, secure, and safe way amidst the Covid-19 pandemic

### TEACHING EXPERIENCE

#### TEACHING ASSISTANT FOR CALCULUS 2 & 3

*Assisted Dr. Neville (Fall 2019), and Professor Sandler (Spring 2020)*

- Led review sessions and several lectures for Calculus 3
- Held mixed office hours in Calculus 2, 3, and Statistics