

# SABRINA MAI

(407) 462-2397  $\diamond$  sabrim2@uci.edu

## EDUCATION

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**University of California, Irvine**, Irvine, CA  
Doctor of Philosophy in Sociology, May 2025

*September 2019 - Present*  
Overall GPA: 3.7

**University of Central Florida**, Orlando, FL  
Bachelor of Science in Mathematics, May 2019  
Minor in Sociology  
Member of Pi Mu Epsilon

*August 2015 - May 2019*  
Overall GPA: 3.6

## RESEARCH EXPERIENCE

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**Networks, Computations, and Social Dynamics Lab (NCASD)**, University of California Irvine

September 2019 - Present

Hazards, Emergencies, and Informal Online Communications (HEROIC) Project

- Develop mathematical frameworks for understanding message interactions
- Implement machine learning and natural language processing methods for analyzing large corpuses of text
- Prepare manuscripts for publications
- Attend weekly project and lab meetings to collaborate and present ongoing research

**Department of Mathematics**, University of Central Florida

May 2018 - June 2019

NSF-Funded Research, Honors in the Major Research

- Assisted Dr. Zhisheng Shuai with mathematical research for NSF funded research project Collaborative Research: Persistence, Stability and Control of Populations in Heterogeneous Networks
- Researched literature relevant to thesis
- Attended weekly meetings to discuss research progress and concepts

## TEACHING EXPERIENCE

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**Teaching Assistant**, School of Social Sciences, University of California, Irvine

Fall 2020-Present (8 Quarters)

- *Course*: Statistics for the Social Sciences Series
- Lead weekly lab sections to supplement lecture sections
- Graded assignments for 60+ undergraduate social science students
- Met with students during weekly office hours and appointments to discuss course materials and academic matters
- Held review sessions for students as an additional responsibility not required by the teaching professor

## RESEARCH PAPERS

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Renshaw, S. L, **Mai, S.**, et al. (2021). “Cutting Through The Noise: Predictors of Successful Online Message Retransmission In The First 8 Months Of The COVID-19 Pandemic”. *Health Security*, 19(1), 31-43.

“Hearts for Hazards: The Factors of User Favorites of Hazard Messages on Twitter,” paper completed in major requirement for the Ph.D in Sociology at the University of California, Irvine

“A Rigorous Analysis on Edge-Based Compartmental Models,” manuscript for submission to the *Journal of Mathematical Biology*

“A Rigorous Analysis on Edge-Based Compartmental Models,” undergraduate thesis for the Honors in the Major program at the University of Central Florida

## PRESENTED WORKS

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**American Sociological Association Annual Meeting: Advances in Mathematical Sociology**, Los Angeles, California July 2022

“*Hearts for Hazards: “Favorites” as A Means Of Message Interaction*”

Sabrina Mai, University of California Irvine; Scott L. Renshaw; Jeanette Sutton, University of Albany; Carter T. Butts, University of California Irvine

**Joint Preconference: Section on Rationality and Society; Section on Mathematical Sociology**, Los Angeles, California July 2022

“*Changing Topics: Causal Narrative Networks of Official COVID-19 Communications*”

Sabrina Mai, University of California Irvine; Scott L. Renshaw; Jeanette Sutton, University of Albany; Carter T. Butts, University of California Irvine

**Sunbelt Networks Conference**, Cairns, Australia June 2022

“*Changing Topics: Causal Narrative Networks of Official COVID-19 Communications*”

Sabrina Mai, University of California Irvine; Scott L. Renshaw; Jeanette Sutton, University of Albany; Carter T. Butts, University of California Irvine

**American Sociology Association Annual Meeting**, Virtual Format Aug. 2021

“*Changing the Subject: Causal Relationships Between COVID-19 Topics*”

Sabrina Mai, University of California, Irvine; Scott L. Renshaw; Carter T. Butts; Jeanette Sutton, University of Kentucky

**American Sociology Association Annual Meeting**, Virtual Format Aug. 2021

“*Inequalities of an Infodemic: Socio-Demographic Influences on Message Retransmission During the COVID-19 Pandemic*”

Scott Leo Renshaw, University of California-Irvine; Sabrina Mai; Elisabeth Dubois; Jeannette Sutton, University of Kentucky; Carter T. Butts, University of California-Irvine

**Student Scholar Symposium at the University of Central Florida**, Orlando, FL April 2019

“*Rigorous Analysis of an Edge-Based Model*”

Sabrina Mai, University of Central Florida; Keith Carlson; Zhisheng Shuai

**Joint Mathematics Meeting: Poster Session**, Baltimore, Maryland March 2019  
“*Rigorous Analysis of an Edge-Based Model*”  
Sabrina Mai, University of Central Florida; Keith Carlson; Zhisheng Shuai

**Mathematical Biology Seminar**, University of Central Florida, Orlando, FL Nov. 2018  
“*A rigorous analysis on the edge-based compartmental model of Miller and Volz*”  
Sabrina Mai, Keith Carlson, Zhisheng Shuai

**Mathematical Biology Seminar**, University of Central Florida, Orlando, FL April 2018  
“*Miller and Volz’s edge-based compartmental disease models*”  
Sabrina Mai

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## HONORS AND AWARDS

Outstanding Project, 2019 Student Scholar Symposium at the University of Central Florida  
Burnett Honors College Student, University of Central Florida  
University of Central Florida Provost Scholar (\$30,000)

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## TECHNICAL STRENGTHS

<b>Computer Languages</b>	R, C, Java
<b>Software &amp; Tools</b>	RStudio, Unix/Linux Systems, LaTeX, Mathematica, Maxima

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## RELEVANT NON-ACADEMIC EMPLOYMENT HISTORY

**Private Tutor**, A+ Tutoring of Central Florida, Orlando, FL  
May 2018 - August 2019

- Provided individual mathematics tutoring to K-12 students
- Evaluated student understanding of concepts and customize learning plan accordingly
- Regularly communicated with parents about students progress and understanding
- Processed payment transactions
- Open/close operations

**Instructor**, Mathnasium of Waterford Lakes, Orlando, FL  
June 2017 - May 2018

- Provided math instruction to students from K-12 using the Mathnasium method
- Encouraged creative learning methods to be utilized with problem-solving
- Evaluated and tracked student progress
- Regularly spoke to parents regarding the student’s progress

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## LEADERSHIP AND COMMUNITY INVOLVEMENT

Mentor, Peer Mentorship Program, Department of Sociology, University of California Irvine  
Sept. 2021 - June 2022

Member, Welcome Committee, Department of Sociology, University of California Irvine  
March 2020

Member, Pi Mu Epsilon, University of Central Florida April 2019 - Present

Vice President, Collegiate Mathematical Society, University of Central Florida      Sept. 2017 -  
May 2019

## COMPETITIONS

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Student Scholar Symposium at the University of Central Florida, Outstanding Project	2019
Joint Mathematics Meeting: Poster Session, Successful Participant	2019
COMAP Interdisciplinary Contest in Modeling, Successful Participant	2018
COMAP Interdisciplinary Contest in Modeling, Successful Participant	2017

## SERVICE

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**Science Fair Judge**, Seminole County Regional Science Fair  
February 2021

- Reviewed high school students' science fair projects in submission for the International Science and Engineering Fair
- Assigned project scores based on research merit

**Volunteer**, Orlando Food Not Bombs, Orlando, FL  
June 2018 - August 2019

- Served food to the homeless population of downtown Orlando at weekly sharings
- Transported produce and food from distributors to volunteers for processing
- Prepared and cooked food for weekly sharings

**Science Fair Judge**, Seminole County Regional Science Fair  
February 2019

- Reviewed high school students' science fair projects in submission for the International Science and Engineering Fair
- Assigned project scores based on research merit

**Science Fair Judge**, Crooms Academy of Information Technology  
December 2018

- Reviewed high school students' science fair projects in submission for the International Science and Engineering Fair
- Assigned project scores based on research merit

**Volunteer**, UCF Arboretum, Orlando, FL  
Aug. - Dec. 2016

- Assisted in maintaining arboretum gardens weekly

**Student Instructor**,  
Aug. - Dec. 2015

Burnett Honors College, University of Central Florida, Orlando, FL

- Taught success and life skills to first graders at an Orange County Title I school
- Prepared lesson plans and course materials

## RESEARCH INTERESTS

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- Mathematical sociology
- Natural Language Processing (NLP)
- Social network analysis
- Emergency communication networks
- Computational methods
- Mathematical modeling of complex dynamical networks
- Mathematical epidemiology models
- Stochastic modeling techniques