

# AMIRARSALAN RAJABI

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## EDUCATION

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<b>Ph.D. in Computer Science</b> University of Central Florida, Orlando, Florida	Expected: May 2022
<b>M.S. in Civil Engineering</b> University of Central Florida, Orlando, Florida	Aug. 2016 - Apr. 2018
<b>B.S. in Civil Engineering</b> Sharif University of Technology, Tehran, Iran	Aug. 2009 - May 2015

## RESEARCH INTERESTS

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Computational Social Science, Network Science, Agent-based Modeling, Machine Learning

## PUBLICATIONS

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- Rajabi, A., Mantzaris, A., Mutlu, E., & Garibay, I. An agent-based model to investigate the spread of COVID-19. In *proceedings of Computational Social Science Conference 2020*, (in press).
- Mutlu, E. ., Rajabi, A., & Garibay, I. CD-SEIZ: Cognition-Driven SEIZ Compartmental Model for the Prediction of Information Cascades on Twitter. In *proceedings of Computational Social Science Conference 2020*, (in press).
- Mutlu, E., Oghaz, T., Rajabi, A., & Garibay, I. Review on graph feature learning and feature extraction techniques for link prediction. *Mach. Learn. Knowl. Extr.* 2020, 2, 672-704.
- Rajabi, A., Mantzaris, A., Atwal K., & Garibay, I. Exploring the disparity of influence between users in the discussion of Brexit on Twitter. (under review at *Journal of Computational Social Science*).
- Rajabi, A., Gunaratne, C., Mantzaris, A. V., & Garibay, I. On Countering Disinformation With Caution: Effective Inoculation Strategies and Others That Backfire Into Community Hyper-Polarization. In *International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation* (pp. 130-139). Springer, Cham.
- Mutlu, E. C., Oghaz, T., Jasser, J., Tutunculer, E., Rajabi, A., Tayebi, A., ... & Garibay, I. (2020). A Stance Data Set on Polarized Conversations on Twitter about the Efficacy of Hydroxychloroquine as a Treatment for COVID-19. *Data in Brief*, 106401.
- Rajabi, A., Talebzadehosseini, S., & Garibay, I. Resistance of communities against conspiracies. In *proceedings of Computational Social Science Conference 2019*, (in press).
- Rajabi, A., Gunaratne, C., Mantzaris, A. V., & Garibay, I. (2020, May). Modeling Disinformation and the Effort to Counter It: A Cautionary Tale of When the Treatment Can Be Worse Than the Disease. In *Proceedings of the 19th International Conference on Autonomous Agents and MultiAgent Systems* (pp. 1975-1977).
- Garibay, I., Mantzaris, A. V., Rajabi, A., & Taylor, C. E. (2019). Polarization in social media assists influencers to become more influential: analysis and two inoculation strategies. *Scientific Reports*, 9(1), 1-9.
- Rajabi, A., Kim, Y., Kim, S. H., Kim, Y., Kim, B., & Nam, B. H. A Preliminary Study on Use of LiDAR Data to Characterize Sinkholes in Central Florida. In *IFCEE 2018* (pp. 23-31).

## ACHIEVEMENTS

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Ranked 237th in the Iranian Mathematics and Physics university entrance exam, known as Konkoor, Among more than 300,000 Participants, Iran  
Jul. 2009

Acceptance in second round of National Physics and Mathematics Olympiad of Iran.

Mar. 2008

Awarded by KIA(Khwarizmi International Award) for achieving second place in Chemistry major(regional level) and acceptance for the National level, Tehran, Iran

Jul. 2008

## RESEARCH

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### **1. Complex Adaptive Systems Lab**

April 2018 - Present

- Member of Complex Adaptive Systems Lab(CASL) at the University of Central Florida, conducting research in the field of computational social sciences, simulation of complex adaptive systems, and data science.

### **2. Computational simulation of online social behavior (SocialSim)**

May 2018 - Jan. 2019

- Computational simulation of the spread and evolution of online information in social media, to study and analyze online social behavior. My role in this project funded by DARPA, was to develop NetLogo snippets, as well as working with Elasticsearch and analyzing the huge online events database.

### **3. Exploring the disparity of influence between users in the discussion of Brexit on Twitter.** April 2020 - July 2020

- The discussion of Brexit as an example of an online polarized discussion on Twitter network was studied in this work. The key components of the effect of influence on the ability of users to broadcast their message was investigated during times of extreme polarization. The corresponding manuscript of this study is under review by the Journal of Computational Social Science.

### **4. Simulation of polarized discussions**

May 2019 - August 2019

- Exploring simulation of polarized discussions from a general and theoretical premise. A methodological framework was proposed in this work which represents key factors that drive social media engagement. The corresponding paper of this study was published in Nature Scientific Reports.

### **5. Understanding the dynamics of COVID-19 spread and generation of multiple waves on infection**

June 2020 - August 2020

- In this work, an agent-based epidemic model of contagion is developed to simulate the spread of COVID-19 disease. The main focus of this work is the ability of the model to generate multiple waves of epidemic. The corresponding manuscript of this work accepted by computational social science 2020 (CSS2020) conference.

### **6. On Countering disinformation with caution: effective inoculation strategies and others that backfire into community hyper-polarization**

May 2019 - September 2019

- This work develops an agent-based model that simulates an organized disinformation campaign performed by a group of users referred to as conspirators, which are opposed by a parallel organization acting as a barrier to the spread of disinformation and as an inoculation. The corresponding paper of this study was published in proceedings of SBP-BRiMS 2020 Conference.

### **7. Review on graph feature learning and feature extraction techniques for link prediction** January 2019 - June 2020

- A thorough review on the literature on link prediction methods, including similarity-based methods, probabilistic methods, relational models, and learning-based method was conducted. The corresponding manuscript of this study is under review by Journal of Social Network Analysis and Mining.

### **8. Resistance of communities against conspiracies**

January 2019 - March 2019

- This work develops a model of opinion dynamics using agent-based modeling. Optimal target selection is investigated along with a baseline to compare different networks in terms of their susceptibility to disinformation. The corresponding paper of this study was accepted and presented in Computational Social Science conference (CSS2019).

## 9. Automated sinkhole detection and quantification using LiDAR data and remote sensing in the area of Central Florida

Nov. 2017 - Mar. 2018

- For my masters thesis, An automated method was developed using regression analysis and image-processing techniques to detect and quantify unreported sinkholes in Central Florida, using LiDAR data(Remote Sensing).

### LANGUAGE

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<b>English</b>	<i>Fluent</i>
	GRE: <i>Quantitative: 167, Verbal: 150, Analytical Writing: 3</i>
<b>Persian</b>	Native
<b>Arabic</b>	Basic

### TEACHING EXPERIENCE

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- 1. Natural Language Processing TA** May 2019 - present
  - Teaching Assistant for the course Natural Language Processing
- 2. Deep Learning TA** May 2019 - present
  - Teaching machine learning and deep learning to Disney employees.
- 3. Private Tutor** 2009 - 2015
  - Teaching undergraduate students in general math, computer programming, and numerical computations.

### COMPUTER SKILLS

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<b>Programming Languages</b>	Python, NetLogo, Julia, R, MATLAB, Java, C++
<b>Engineering Software</b>	ArcGIS, ArcMap, QGIS, Saga-GIS, AutoCAD,
<b>Database</b>	SQL, MySQL, SQLite, POSTGRES, MongoDB, Elasticsearch
<b>OS</b>	Linux, Microsoft Windows, Mac