

# Scott A. Freitas

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## Education

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### Georgia Institute of Technology

Atlanta, GA

PH.D. IN MACHINE LEARNING

Fall 2018 - Present

- Advisor: Dr. Polo Chau
- NSF Graduate Research Fellowship

### Arizona State University

Tempe, AZ

M.S. IN COMPUTER SCIENCE—GPA: 4.0

Summer 2017 - Spring 2018

- Advisor: Dr. Hanghang Tong  
Thesis: Mining Marked Nodes in Large Graphs
- Outstanding CS Master Student (2018)

### Arizona State University

Tempe, AZ

B.S. IN COMPUTER SCIENCE—GPA: 3.98

Fall 2015 - Spring 2017

### Arizona State University

Tempe, AZ

B.S.E. IN ELECTRICAL ENGINEERING—GPA: 3.64

Fall 2010 - Spring 2014

## Experience

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### Graduate Research Assistant

Atlanta, GA

POLO CLUB OF DATA SCIENCE (DR. POLO CHAU)

May. 2018 - Present

- Exploring methods to detect adversarial perturbations in deep learning models.

### Graduate Research Assistant

Tempe, AZ

ASU DATA LAB (DR. HANGHANG TONG)

May 2017 - Aug. 2018

- Developed web-based prototype for explainable ranking algorithm in complex multi-layered networks ([website](#)).
- Designed scalable algorithms to (i) improve local graph partitioning using both graph topology and attribute data, (ii) predict the evolution of local communities.

### Summer Research Assistant

Tempe, AZ

ASU VADER LAB (DR. ROSS MACIEJEWSKI)

May 2017 - Aug. 2017

- Created augmented reality (AR) program for voice and touch interactions (e.g. rotate, scale, move, select) with graph models in Microsoft HoloLens.

### Undergraduate Research Assistant

Tempe, AZ

ASU DATA LAB (DR. HANGHANG TONG)

Jan. 2016 - May 2017

- Developed fast graph mining algorithms for network connectivity analysis. Designed **award winning web platform** for visualization and analysis.

### Undergraduate Teaching Assistant

Tempe, AZ

INTRO TO ASU

Aug. 2013 - Dec. 2013

- Designed and taught lesson plans to new engineering students.

### Naval Air Warfare Center

Point Mugu, CA

NREIP INTERN (OBTAINED SECRET SECURITY CLEARANCE)

May. 2013 - Aug. 2013

- Worked on preventing EMI from coupling into superconducting analog to digital receiver.

## Publications

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- J. Kang\*, **S. Freitas\***, H. Yu, Y. Xia, H. Tong. X-Rank: Explainable Ranking in Complex Multi-Layered Networks. CIKM 2018. [website](#), [video](#) \* First two authors contributed equally to this work.
- **S. Freitas**, H. Tong, N. Cao, Y. Xia. Local Partition in Rich Graphs. Under Review: IEEE Big Data 2018. [website](#), [paper](#)
- **S. Freitas**, H. Tong, N. Cao, Y. Xia. Rapid Analysis of Network Connectivity. CIKM 2017. **Best demo candidate** (2nd place). [website](#), [video](#), [code](#), [paper](#)

## Projects

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### Reinforcement Learning: Exploration of DQN in ViZDoom

May. 2018

- DQN implementation with multiple deep learning models in ViZDoom environment. [paper](#)

### Deep Learning: Beta-Variational Autoencoder

May. 2018

- Implementation of Beta-VAE on multiple datasets. [paper](#)

### Anime Recommendation System

Dec. 2017

- Recommender system using collaborative filtering and latent factor model. [code](#), [paper](#)

### Emotion Recognition and History Recollection in Conversational Agents

May 2017

- Retrieval based chat-bot (tf-idf) utilizing emotional state (deep learning) and prior conversations (LDA). [video](#), [code](#), [paper](#)

## Honors & Awards

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2018-23	<b>National Science Foundation GRFP (graduate fellowship)</b> , NSF	<i>Atlanta, GA</i>
2018	<b>Oustanding Computer Science Masters Student</b> , ASU	<i>Tempe, AZ</i>
2017	<b>Best Demo Paper Candidate (2nd place)</b> , CIKM '17	<i>Singapore</i>
2017	<b>CIKM Travel Grant</b> , NSF and SIGWEB	<i>Singapore</i>
2016-17	<b>FURI Grant (Fulton Undergraduate Research Initiative)</b> , Arizona State University	<i>Tempe, AZ</i>
2016-17	<b>Merit Scholarship</b> , Arizona Graduate Scholar Award	<i>Tempe, AZ</i>
2010-14	<b>Merit Scholarship</b> , Provost's Scholarship	<i>Tempe, AZ</i>

## Presentations & Publicity

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### ASU Now—Spotlight Article [[article](#)]

*Tempe, Arizona*

"NSF GRADUATE RESEARCH FELLOW WANTS TO...SOLVE SOCIETY'S TOUGHEST PROBLEMS"

*July. 2018*

### ASU FURI—Keynote Speaker

*Tempe, Arizona*

"NETWORK CONNECTIVITY ANALYSIS AND VISUALIZATION IN LARGE SCALE GRAPHS"

*Apr. 2017*

## Skills

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**Programming Languages** Python, C++, C#, Java

**Web Development** .NET Core, ASP.NET, HTML, CSS, Javascript, vis.js

**Machine Learning** Keras, TensorFlow, TFLearn, SciPy, NumPy, OpenCV, scikit-learn, NetworkX