

Scott A. Freitas

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Education

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
- 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

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

- J. Kang*, **S. Freitas***, Y. Xia, H. Tong. X-Rank: Explainable Ranking in Complex Multi-Layered Networks. Under review. [website](#), [video](#) * First two authors contributed equally to this work.
- **S. Freitas**, H. Tong, N. Cao, Y. Xia. Local Partition in Rich Graphs. arXiv 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

Reinforcement Learning: Exploration of DQN in ViZDoom

May, 2018

- Implemented DQN algorithm with multiple deep learning models in two ViZDoom environments. [paper](#)

Deep Learning: Beta-Variational Autoencoder

May, 2018

- Implemented Beta-VAE, generated new data points from learned lower dimensional representation on MNIST and SVHN 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) assesses user emotional state (deep learning) and prior conversations (LDA). [video](#), [code](#) [paper](#)

Honors & Awards

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

Presentations

ASU FURI—Keynote Speaker

Tempe, Arizona

FULTON UNDERGRADUATE RESEARCH INITIATIVE (FURI)

Apr. 2017

- Presentation on network connectivity analysis and visualization in large scale graphs.

Skills

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