Last updated: Aug 2023

Makan Arastuie

makan.arastuie@gmail.com | makanarastuie.com | github.com/Makan-Ar

Education

Jan. 2018 – Aug. 2020 | Toledo, OH
MSE, Computer Science & Engineering @ University of Toledo
- GPA: 4.0 / 4.0 | Advisor: Dr. Kevin S. Xu
- Research focus: Machine Learning & Social Network Analysis
- Thesis: Generative Models of Link Formation and Community Detection in Continuous-time Dynamic Networks

Aug. 2013 – Dec. 2017 | Toledo, OH
BSc, Computer Science & Engineering @ University of Toledo
- GPA: 3.91 / 4.0 | Minor in Mathematics | Summa Cum Laude | Tau Beta Pi, ACM, IEEE

Professional Experiences

Industry

Jan. 2022 – Present
Sr. Machine Learning Engineer @ Seagate (Seagate Research Group)

Aug. 2020 – Jan. 2022
Machine Learning Engineer II

Jan. 2020 – July 2020 | Longmont, CO
Data Science and Machine Learning Intern
- Generating novel hard drive head and media designs to increase total capacity by developing deep surrogate models with active learning
- Designed a transformer-based surrogate model for hard drive media simulation to discover new media designs, resulting in a 9% improvement in our target magnetic property
- Developed a self-supervised generative model to optimize hard drive calibration processes, resulting in a 33% reduction of test time (~2hrs) while maintaining accuracy
- Trained industry-specific language models and utilized them in downstream natural language processing tasks such as summarization, information retrieval, and sentiment analysis
- Mentoring and managing interns on diverse machine learning projects
- **Technologies***:* Python, PyTorch, Docker, AWS, DVC, SQL

Aug. 2015 – Dec. 2017 | Toledo, OH
Student Software Developer @ University of Toledo (Simulation & Gaming Studio)
- Collaborated with Twine.it and improved their RESTful APIs average response time by ~30%
- Developed an online educational game to simulate disaster scenes for emergency responders
- **Technologies***:* C#, C++, JavaScript, SQL, HTML, CSS, Azure, REST API

Jan. 2015 – May 2015 | Canton, OH
Software Developer Intern @ Diebold Nixdorf
- Improved ATM's front-end UX and UI which reduced withdraw transaction time by about 40%
- Upgraded ATM's massaging simulator to keep it compatible with new back-end updates
- **Technologies***:* C#, JavaScript, RabbitMQ, HTML, CSS

Research

Jan. 2018 – Dec. 2019
Graduate Research Assistant @ IDEAS Lab (Univ. of Toledo EECS Dept.)

May 2016 – Dec. 2017 | Toledo, OH
Undergraduate Research Assistant
- Proposed a generative model for continuous-time networks of relational events with scalable and consistent estimators *(pub. [1])*
- Developed a Python package (DyNetworkX) for the study of dynamic networks *(pub. [3])*

- Designed a machine learning post-processing technique to improve prediction accuracy of human activity, using smartphone sensor data *(publications [4])*
- Analyzed the impacts of local subgraphs on future interactions in social networks *(pub. [2])*
- **Technologies**: Python, TensorFlow, PyTorch

Teaching

2018 – 2019
Toledo, OH

Teaching Assistant @ University of Toledo

- EECS 1510, *Object Oriented Programming* – Spring 2018
- EECS 3100, *Embedded Systems* – Summer 2018
- EECS 1100, *Digital Logic Design* – Fall 2018 & Spring 2019

Publications

First author

2020 [1] M Arastuie, S Paul, and K Xu. "CHIP: A Hawkes Process Model for Continuous-time Networks with Scalable and Consistent Estimation" *NeurIPS [view paper]*

2019 [2] M Arastuie and K Xu. "Personalized Degrees: Effects on Link Formation in Dynamic Networks from an Egocentric Perspective" *Companion Proceedings of The Web Conference [view paper]*

Co-author

2022 [3] T Hilsabeck, M Arastuie, and K Xu. "A hybrid adjacency and time-based data structure for analysis of temporal networks" *Applied Network Science* (Journal) *[view paper]*

2018 [4] M Sloma, M Arastuie, and K Xu. "Activity Recognition by Classification with Time Stabilization for the SHL Recognition Challenge" *Proceedings of UbiComp [view paper]*

Professional Services

Program Committee: SocInfo (2020, 2022)

Reviewer: The Web Conference (WWW) (2019, 2020, 2021) – SocInfo (2019, 2020, 2022)
IEEE Transactions on Computational Social Systems (2021) – IEEE BigData (2020)
Journal of Data Science and Analytics (2020, 2021) – Journal of Complex Networks (2019)

Projects

Feb. 2018 – Present **Founding Contributor of DyNetworkX** – IDEAS Lab
An open-source Python package for the analysis of discrete & continuous-time dynamic networks
- Documentation & source code: dynetworkx.readthedocs.io

Jan. 2016 – July 2016 **Connected UT** – Solo Project
A website for University of Toledo's students to sell/buy textbooks, with extended search options
- Source code: github.com/makan-ar/connected-ut

Awards

2018 **Dean's Assistantship** @ University of Toledo
Full-ride scholarship awarded to one incoming master's student in the College of Engineering

2017 **Undergraduate Summer Research grant** @ University of Toledo

2013 **International Student Scholarship** @ University of Toledo