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Makan Arastuie

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Education

Jan. 2018 – Aug. 2020
Toledo, OH

MSE, Computer Science & Engineering @ University of Toledo

- GPA: 4.00 / 4.00 | Advisor: 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 / 4.00 | Minor in Mathematics | Honors: Summa cum laude | Tau Beta Pi, ACM, IEEE

Professional Experiences

Industry

Jan. 2022 – Present
Aug. 2020 – Jan. 2022
Jan. 2020 – July 2020
Longmont, CO

Sr. Machine Learning Engineer @ Seagate
Machine Learning Engineer II
Data Science and Machine Learning Intern

- Developing ML models to optimize hard drive calibration processes and reliability tests
- Created a masked autoencoder architecture to identify and generate samples from high performing regions of a calibration search space by learning from prior calibration data
- Reduced the duration of a calibration process of a hard drive product line by about 33% (2hr) while maintaining accuracy using deep unsupervised learning
- Trained several industry-specific language models and utilized them in various downstream natural language processing tasks such as summarization, information retrieval, and sentiment analysis
- Collected an industry-specific corpus (~2B tokens) by gathering & cleaning >7M docs from 12 sources
- Mentoring and managing interns on diverse machine learning projects
- **Technologies:** Python, PyTorch, SQL, Docker, AWS, DVC, Flask

Aug. 2015 – Dec. 2017
Toledo, OH

Student Software Developer @ University of Toledo (Simulation & Gaming Studio)

- Collaborated with Twine.it and improved their RESTful API's average response time by about 30%
- Developed an online educational game to simulate disaster scenes for emergency responders
- **Technologies:** C#, C++, JavaScript, SQL, HTML, CSS, Azure, REST

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, Object oriented programming

Research

Jan. 2018 – Dec. 2019
May 2016 – Dec. 2017
Toledo, OH

Graduate Research Assistant @ IDEAS Lab (Univ. of Toledo EECS Dept.)
Undergraduate Research Assistant

- Proposed a generative model for continuous-time networks of relational events with scalable and consistent estimators *(publication [1])*
- Developed a Python package for the study of dynamic networks [*documentation*] *(publications [3])*
- Designed a machine learning post-processing technique to improve prediction accuracy of human activity, using smartphone sensor data *(publications [4, 5])*
- Analyzed the impacts of local subgraphs on future interactions in social networks *(publication [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*** *[link to 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 (WWW)*** *[link to 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) *[link to paper]*

2019 [4] M Sloma, M Arastuie, and K Xu. "Effects of Activity Recognition Window Size and Time Stabilization in the SHL Recognition Challenge'' ***Human Activity Sensing, Springer*** *(link to paper)*

2018 [5] M Sloma, M Arastuie, and K Xu. "Activity Recognition by Classification with Time Stabilization for the SHL Recognition Challenge" ***Proceedings of UbiComp*** *[link to paper]*

Professional Services

2020 *Program Committee:* SocInfo (2020, 2022)

2018 – 2021 *Reviewer:* The Web Conference (WWW) (2019, 2020, 2021)
IEEE Transactions on Computational Social Systems (2021) – IEEE BigData (2020)
Journal of Data Science and Analytics (2020, 2021) – Journal of Complex Networks (2019)
SocInfo (2019, 2020, 2022)

Projects

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

Jan. 2016 – July 2016 *Connected UT* – Solo Project
A website for the 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
Awarded once a year 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

Relevant Coursework

Natural Language Processing Specialization (Coursera MOOCs)
Deep Unsupervised Learning (Open access course by UC Berkeley / in progress)
Deep Learning Specialization (Coursera MOOCs) | Probabilistic Methods in Data Science
Machine Learning | Social and Information Networks | Artificial Intelligence
Data Learning | Linear Statistical Models | Statistical Computing