

SULYUN LEE

Iowa City, IA

✉ sulyun-lee@uiowa.edu

☎ 319-512-5979

🏠 <https://sulyunlee.github.io/>

🌐 [LinkedIn](#)

🐙 [Github](#)

EDUCATION

University of Iowa

Ph.D., Information Science

- Advisor: [Dr. Kang Zhao](#)

Expected May 2022

Iowa City, IA

Handong Global University

B.S., Computer Science and Engineering

Feb. 2017

Pohang, South Korea

TECHNICAL SKILLS

Languages: Python, R, Java, C/C++, HTML/CSS, JavaScript, SQL

Technologies/Frameworks: Linux, AWS, GitHub, Latex, SPSS

Python packages

- Data Management: Numpy, Pandas, JSON
- Machine learning: Sklearn
- Web scraping: BeautifulSoup
- NLP: Gensim, NLTK
- Graph/Network: NetworkX, Igraph
- Statistical analysis: Statsmodel
- Visualization: Matplotlib, Seaborn
- Deep learning: Pytorch, Keras

RESEARCH INTEREST

Graph embedding, Graph neural network, Data mining in social networks, Data science, Team collaboration network

RESEARCH AND PROFESSIONAL EXPERIENCE

Graduate Research Assistant

Department of Internal Medicine, University of Iowa

- Supervisor: [Dr. Phillip Polgreen](#) and [Dr. Linnea Polgreen](#)

May 2019 – May 2021

Iowa City, IA

Graduate Research Assistant

College of Pharmacy, University of Iowa

- Supervisor: [Dr. Linnea Polgreen](#)

Aug. 2017 – May 2019

Iowa City, IA

Undergraduate Research Assistant

School of Computer Science and Electrical Engineering, Handong Global University

- Supervisor: Dr. Shin Hong, Dr. Youngsup Kim

Mar. 2016 – Dec. 2016

Pohang, South Korea

Python Textbook Translator

School of Computer Science and Electrical Engineering, Handong Global University

- Translated *Introduction to Computation and Programming in Python* by John V. Guttag from English to Korean

June 2015 – Feb. 2017

Pohang, South Korea

PROJECTS

Representation Learning in Hierarchical Collaboration Networks ([Codes](#))

Oct. 2020 – Present

Pytorch, NetworkX, Gensim

- Proposed a team embedding model that predicts the team performance based on the hierarchical collaboration network using the deep learning framework
- Achieved 9% gain of prediction performance in NFL coach dataset

Learning Dynamic Heterogeneous Embedding in Networks

Sep. 2020 – May 2021

Pytorch

- Proposed a network embedding model from a dynamic network with heterogeneous interactions
- Achieved 35% gain in classification performance using a hospital interaction network
- Collaborated with professors and students from the Department of Computer Science, University of Iowa

Team Collaboration for COVID-19 Research ([Codes](#))

May 2020 – Mar. 2021

Statsmodel, Gensim, NetworkX, BeautifulSoup

- Explored the collaboration patterns that lead to team success among researchers in studying COVID-19

- Collected dataset by web-scraping and using APIs, applied a LDA topic model for representing texts, generated collaboration networks, and modeled linear/logistic regression
- Collaborated with professors from the College of Business, University of Iowa

HIV/AIDS Prediction with Syringe Exchange Program (SEP) ([Codes](#))

Feb. 2020 – May 2020

Sklearn

- Simulated on the number of HIV/AIDS diagnoses and deaths when the number of SEPs is increased using linear regression and random forest models.
- Discovered that increasing SEPs reduces the HIV/AIDS diagnoses and deaths by 7%
- Collaborated with a doctoral student from the College of Pharmacy, University of Iowa

Risk analysis for Cystic Fibrosis (CF) carriers

May 2019 – May 2021

R – Glm and Lm packages

- Analyzed the risks of electrolyte and fluid disorders, heart diseases, pancreatitis, diabetes, and asthma for CF carriers using odds ratio analysis
- Discovered that CF carriers are at higher risks of CF-related diseases than others
- Collaborated with a professor from the College of Pharmacy and a professor from the Department of Internal Medicine, University of Iowa

Link Prediction in an Online Health Community ([Codes](#))

Aug. 2018 – Jan. 2020

Sklearn, Gensim, Keras, NetworkX

- Predicted the future interactions among online health community users on a multi-relational network
- Achieved 8% better prediction by implementing a LDA topic modeling, learning network embedding, and modeling Logistic Regression, Random Forest, Adaboost, and MLP
- Collaborated with a professor from the College of Business and a student from Department of Computer Science, University of Iowa

Delay Response Analysis on Crowd Funding Platform ([Codes](#))

May 2018 – Dec. 2020

Statsmodel, BeautifulSoup, TextBlob

- Explored the association between backers' sentiment and entrepreneurs' delay response in a crowdfunding platform with regression analysis, and supported the importance of entrepreneurs' promises on prompt delivery
- Web-scraped a crowdfunding website, performed sentiment analysis, and modeled linear regression
- Collaborated with two professors from the College of Business, University of Iowa

Treatment Optimization for Acute Myocardial Infarction (AMI) patients

Aug. 2017 – May 2019

R – Nnet package

- Proposed a model that optimizes the medications for AMI patients by increasing survival probability up to 40%
- Trained a neural network model that predicts patient survival with a 0.8 AUC score
- Collaborated with a professor from the College of Pharmacy and a professor from the College of Business, University of Iowa

TEACHING EXPERIENCE

Graduate Teaching Assistant

Fall 2021, Fall 2017

Department of Computer Science, University of Iowa

Iowa City, IA

- Courses: Analyzing Data for Informatics, Topics in Computer Science I (JavaScript)

Workshop Instructor

Aug. 2019 – Present

Iowa Social Science Research Center

Iowa City, IA

- Workshops on Python programming

Undergraduate Teaching Assistant

Feb. 2016 – Dec. 2016

School of Computer Science and Electrical Engineering, Handong Global University

Pohang, South Korea

- Course: Introduction to Big Data
- Python Camp

CONFERENCE AND WORKSHOP PAPERS

Sulyun Lee, Hankyu Jang, Kang Zhao, Michael S. Amato, and Amanda L. Graham. "Link Prediction in an Online Health Community for Smoking Cessation." *KDD workshop on Mining and Learning with Graphs*. Virtual Meeting, 2020.

Sulyun Lee, Hankyu Jang, Kang Zhao, Michael S. Amato, and Amanda L. Graham. "Multi-Relational Link Prediction for an Online Health Community." *INFORMS Data Science Workshop*, Seattle, WA, 2019.

PRESENTATIONS

Sulyun Lee, Kang Zhao, Ning Li. "Understanding The Research Collaborations During COVID-19 Pandemic." *INFORMS Annual Meeting*. Virtual Meeting, 2020.

Sulyun Lee, Hankyu Jang, Kang Zhao, Michael S. Amato, and Amanda L. Graham. "Link Predictions in an Online Health Community for Smoking Cessation." *KDD Workshop On Mining and Learning with Graphs*. Virtual Meeting, 2020.

Sulyun Lee, Hankyu Jang, Kang Zhao, Michael S. Amato, and Amanda L. Graham. "Link Predictions For Social Networks in Online Health Communities." *INFORMS Annual Meeting*. Seattle, WA, 2019.

CERTIFICATES

Structuring Machine Learning Projects Aug. 2018
Coursera

Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization Jul. 2018
Coursera

Neural Networks and Deep Learning Jun. 2018
Coursera

Machine Learning Mar. 2016
Coursera

R Programming Nov. 2015
Coursera

edX Verified Certificate for Introduction to Computer Science and Programming Using Python Aug. 2015
edX

HONORS AND AWARDS

Graduate Fellowship Sep. 2020 – Aug. 2021
Interdisciplinary Graduate Program in Informatics

PROFESSIONAL SERVICE

Session Chair Oct. 2021
INFORMS Annual Meeting 2021

Leader of Big Data Academic Society Mar. 2016 – Dec. 2016
Handong Global University