

YOONJOO LEE

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RESEARCH INTEREST

My research interest lies in the intersection of human-computer interaction (HCI), natural language processing (NLP), and Education. I aim to support people to learn from and understand information-dense text (e.g., lecture transcript, scientific article) by structuring the information in the context to create conversational questions and answers to scaffold people's understanding.

EDUCATION

KAIST

Ph.D. Candidate in Computer Science. Advisor: Juho Kim

Daejeon, Republic of Korea

Sep. 2020 – Present

Ewha Womans University

M.S. in Statistics (Applicational Statistics). Advisor: Dongwan Shin

B.S. Major in Mathematics Education, Minor in Statistics

Graduated with Honors (*Magna Cum Laude*)

Seoul, Republic of Korea

Mar. 2018 – Feb. 2020

Mar. 2014 – Feb. 2018

University of California, Davis

Exchange student in Mathematics

Davis, CA, USA

Sep. 2015 – Feb. 2016

PUBLICATIONS

Conference and Journal Papers

[C5] DAPIE: Interactive Step-by-Step Explanatory Dialogues to Answer Children's Why and How Questions

Yoonjoo Lee, Tae Soo Kim, Sundong Kim, Yohan Yun, Juho Kim

CHI 2023: Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems.

[C4] Promptiverse: Scalable Generation of Scaffolding Prompts Through Human-AI Hybrid Knowledge Graph Annotation

Yoonjoo Lee, John Joon Young Chung, Tae Soo Kim, Jean Y. Song, Juho Kim

CHI 2022: Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems

[C3] Personalizing Ambience and Illusionary Presence: How People Use "Study with Me" Videos to Create Effective Studying Environments

Yoonjoo Lee, John Joon Young Chung, Jean Y. Song, Minsuk Chang, Juho Kim

CHI 2021: Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems.

[C2] A Machine Learning Approach that meets Axiomatic Properties in Probabilistic Analysis of LTE Spectral Efficiency

Yoonjoo Lee, Yunbae Kim, Seungken Park

ICTC, Oct. 2019

[C1] Probabilistic Analysis of Spectral Efficiency for LTE based on PDCCH Measurement Data

Yoonjoo Lee, Yunbae Kim, Yeonkyu Park, Seungken Park

IEEE Communications Letters, vol. 23, no. 9, Sep. 2019

Posters and Workshop Papers

[P5] LMCanvas: Object-Oriented Interaction to Personalize Large Language Model-Powered Writing Environments

Tae Soo Kim, Arghya Sarkar, **Yoonjoo Lee**, Minsuk Chang, and Juho Kim

CHI 2023 Workshop on Generative AI and HCI

[P4] Interactive Children's Story Rewriting Through Parent-Children Interaction

Yoonjoo Lee, Tae Soo Kim, Minsuk Chang, Juho Kim

ACL 2022 Workshop on Intelligent and Interactive Writing Assistant

[P3] XDesign: Integrating Interface Design into Explainable AI Education

Hyungyu Shin, Nabila Sindi, **Yoonjoo Lee**, Jaeryoung Ka, Jean Y. Song, Juho Kim

SIGCSE TS 2022 Posters

[P2] A Study on the Distribution Analysis of LTE Resource Block Usage from TSME Measurement Data

Yoonjoo Lee, Yunbae Kim, Seungken Park

KICS, Jun. 2018

[P1] A Study on the Estimation of Probability Distribution of the Spectral Efficiency of LTE based on TSME Measurement Data

Yunbae Kim, **Yoonjoo Lee**, Seungken Park

KICS, Jun. 2018

RESEARCH EXPERIENCE

LG AI Research

Research Scientist Intern, Advanced Machine Learning Lab

Seoul, Republic of Korea

Nov. 2022 – March. 2023

- Designed a schema for questions triggered from academic paper by adapting prior literature in education to a paper reading context.
- Collected various advanced questions based on the proposed schema from academic paper readers [under submission].

KIXLAB, KAIST

Graduate Research Intern

Daejeon, Republic of Korea

Mar. 2020 – Aug. 2020

- Investigated user experiences with VR services by analyzing large-scale text data using various techniques like clustering, topic modeling, and sentiment analysis.

Electronics and Telecommunications Research Institute (ETRI)

Graduate Research Assistant, Data Sciences Group

Daejeon, Republic of Korea

Mar. 2018 – Dec. 2019

- Performed analysis of Spectral Efficiency for LTE with probabilistic modeling and Deep Neural Networks. [P1, C1, C2]
- Participated in research about predicting future Resource Block Usage by applying stochastic modeling and Recurrent Neural Networks. [P2]

Undergraduate Research Intern, Data Sciences Group

Jan. 2018 – Feb. 2018

- Devised a module for pre-processing and summarizing mobile traffic data in Python.

TEACHING

Introduction to Social Computing

KAIST CS473, Instructor: Juho Kim

Fall 2020, Fall 2021

Time Series Analysis

Ewha Womans University, Instructor: Dongwan Shin

Spring 2019

Regression Analysis

Ewha Womans University, Instructor: Donghwan Lee

Fall 2018

Last Updated: April 20, 2023

SERVICES

Program Committee

- CHI LBW 2023

Reviewer

- CHI 2023, 2022
- UIST 2022
- ACL 2023
- CSCW 2023
- C&C 2022
- IEEE Transactions on Learning Technologies

Student Volunteer

CHI 2022

KAIST-Google ExploreCSR

2022 – Present

Student Organizer

Programming Mentoring

2016 – 2017

Leader of Student Organizer

Mathematics Mentoring in Ewha Girls High School

2015 – 2017

Mentor

HONORS, AWARDS AND SCHOLARSHIPS

Research Assistant Scholarship

2019

College of Natural Sciences, Ewha Womans University

Admission Scholarship

2018

College of Natural Sciences, Ewha Womans University

Honors Scholarship

2014, 2015, 2016, 2017

College of Education, Ewha Womans University

Dean's List

2014, 2015, 2016, 2017

College of Education, Ewha Womans University

Ewha Womans University Alumnae Association Scholarship

2017

College of Education, Ewha Womans University

Electronics and Telecommunications Research Institute (ETRI)*Research Assistant, Data Sciences Group***Daejeon, Republic of Korea**

Feb. 2018 – May 2019

- Created applicable transformation making results follow approximately jointly normal distribution with measurement data
- Derived the key probabilities for SE analysis and adopted Deep Neural Network(DNN) to extend the analysis from measured cases to general cases.

Time Series Analysis Research Lab, Ewha Womans University*Time Series Research Lab (Advisor: Professor Dongwan Shin)***Seoul, Republic of Korea**

Jan. 2019 – Dec. 2019

- Built prediction models for high frequency data

Probabilistic Analysis*ETRI***Daejeon, Republic of Korea**

Feb. 2018 – May 2019

- Created applicable transformation making results follow approximately jointly normal distribution with measurement data
- Derived the key probabilities for SE analysis and adopted Deep Neural Network(DNN) to extend the analysis from measured cases to general cases.

Deep Learning*ETRI***Daejeon, Republic of Korea**

Feb. 2018 - Dec.2018

- Participated in research on busy hour RB usage rates data
 - Stochastic modeling: Derived a method to estimate probability density of the data by the family of Exponentiated Exponential Distribution using quantiles
 - Deep Learning: Predicted future RBU using Long Short-Term Memory(LSTM), Gated Recurrent Unit(GRU), Encoder-Decoder versions models

Time Series Analysis*Time Series Research Lab (Advisor: Professor Dongwan Shin)***Seoul, Republic of Korea**

Jan. 2019 – Dec. 2019

- Built prediction models for high frequency data
 - Deep Learning: Used DNN, LSTM for Realized Volatility(RV) classification and regression
 - Time Series model: Used Autoregressive Integrated Moving Average(ARIMA) and Heterogeneous Autoregressive(HAR) model to forecast RV and compared with Deep Learning model based on prediction error
- Applied dimension reduction methods to simplify original data structure with 40 financial features and forecast future RV

KAIST-Google ExploreCSR*Student Organizer*

Spring 2022 – Present

Programming Mentoring*Leader of Student Organizer*

Mar. 2016 – Dec. 2017

- Planned and led lectures about Python and Ruby on Rails for college students, prepared learning materials including lecture slides and coding assignments
- Organized a Hackathon event for 100+ students to promote cooperation with students from other schools

Mathematics Mentoring in Ewha Girl's High School, Seoul, South Korea

Feb. 2015 – Dec. 2017

- Taught math to high school students every week with follow-up Q&A sessions

ACADEMIC SERVICES

Reviewer

CHI 2022

C&C 2022

IEEE Transactions on Learning Technologies

Student Volunteer

CHI 2022

SERVICE AND LEADERSHIP

KAIST-Google ExploreCSR
Student Organizer

Spring 2022 – Present

Programming Mentoring
Leader of Student Organizer

Mar. 2016 – Dec. 2017

Mathematics Mentoring in Ewha Girl's High School
Mentor

Feb. 2015 – Dec. 2017

My research interest is supporting people to perform tasks ranging from teaching, writing, to prototyping effectively by 1) building AI powered systems with humans in the loop and 2) analyzing and adapting large scale data and models. Specifically, one of my research goals is to create computational methods and systems that support scalable teaching and learning using human-AI collaboration.