Yongshin Kim

+82-10-2729-4727
ys.kim2@okestro.com
http://yong-shin.github.io

RESEARCH INTEREST

NLP, Voice Synthesis, Deep Learning, Emotion Recognition, Human-Computer Interaction

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST)
M.S. in Data Science — *Aug. 2020 – Jul. 2022*
Advisor: Uichin Lee

Handong Global University (HGU)
B.A. Mathematics and Statistics & B.A. Management (Double-Major) — *Mar. 2014 – Jul. 2020*
Summa Cum Laude

PUBLICATIONS

[1] Lee, P., Kim, H., **Kim, Y**., Choi, W., Zitouni, M. S., Khandoker, A., ... & Jeong, Y. (2022). Beyond Pathogen Filtration: Possibility of Smart Masks as Wearable Devices for Personal and Group Health and Safety Management. JMIR mHealth and uHealth, 10(6), e38614.

[2] SeungLin Yang, **Yongshin Kim**, Doohee Chung, (2019) *"Nonlinear Relationship Between Technological Entrepreneurship and National Competitiveness: The Moderation Effect of Innovation-driven Economy"*, Journal of Technology Innovation, 27(3), 113-142. (KCI)

[3] Haejun Jung, **Yongshin Kim**, Doohee Chung, (2019) *"The Effect of Intellectual Property-Based Startups on Employment"*, Innovation Studies, 14(4), pp119-154. (KCI)

EXPERIENCE

Work Experience

Machine Learning Researcher — Okestro
Sept. 2022 – Present

Academic Experience

Interactive Computing Lab — KAIST
Advisor: Uichin Lee — *Aug. 2020 – Jul. 2022*

Technological entrepreneurship Lab — HGU
Advisor: Doohee Chung — *Aug. 2018 – Jul. 2020*

Mathematics and Statistics major — HGU
Advisor: Heonjoo Kim — *Aug. 2019 – Feb. 2020*

Business Information Technology Practice (Teaching Assistant) — HGU
Advisor: I-Soo Joe — *Mar. 2018 – Jul. 2018*

Principles of Accounting (Tutoring for foreigner) — HGU
Advisor: Hyunmo Sung — *Sept. 2017 – Dec. 2017*

Other Experience

Mentor, Vision in Calling | HGU — *Mar. 2020 – Jul. 2020*
Director, Dep. of General Affairs, Student Government | HGU — *Dec. 2019 – Jul. 2020*
Director, Technological entrepreneurship Lab | HGU — *Jul. 2019 – Feb. 2020*
Executive, Residential College of International Dormitory | HGU — *Jul. 2019 – Feb. 2020*
Manager, Handong English Camp | HGU — *Mar. 2018 – Sept. 2018*
Instructor Education Certification for foreigners | HGU — *Mar. 2018 – Jun. 2018*
Accountant, International freshmen orientation | HGU — *Mar. 2017 – Aug. 2019*
English Teacher, Global Vision Christian School | GVCS) — *May. 2017 – Sept. 2017*

PROJECTS

Research Projects

FAQ Classification — Okestro
Mar. 2023 – June. 2023
We present a model that uses BERT and contrastive learning to automatically classify users' inquiries. The model eliminates the need for users to have domain knowledge or for administrators to classify multiple inquiries. This can significantly improve the efficiency of the inquiry management system, reduce the workload of users and administrators and enhance the overall user experience.

Log-Level Anomaly Detection — Okestro
Mar. 2023 – June. 2023
We present FineLog, a log message-wise anomaly detection framework that enables anomaly detection for each log message in the context of a given sequence. This study shows that FineLog not only records high performance in the existing sequence unit anomaly detection, but also records high performance in log unit anomaly detection.

Baseline of SWOT Classification — Okestro
Sept. 2022 – Dec. 2022
We present baseline indicators by introducing BERT model, which is widely used in the natural language processing field, for the first time in SWOT analysis. Starting with this approach, the baseline indicators of this study are expected to be useful for business intelligence cloud platforms that can be easily accessed by all stakeholders through deep learning of SWOT analysis.

Automation of Company SWOT Analysis Using Sentence BERT — Okestro
Sept. 2022 – Dec. 2022
This study presented SWOT Sentence BERT as an AIaaS model that can intellectually automate company SWOT analysis. The SWOT Sentence BERT is a sentence embedding model that is learned through SWOT text data processed in the form of natural language inference task. In order to automate SWOT analysis, we applied K-Means clustering algorithm to make clusters with sentence embeddings and classified sentence embeddings based on their predicted clusters.

Emotion Recognition (Master Thesis) — KAIST
Oct. 2021 – July. 2022
In this study, we propose a method for predicting the emotions of the speaker in the naturalistic conversation using a speaker encoder and counterpart encoder composed of CNN-LSTM deep learning networks. We used emotion-related data called K-EmoCon collected during the debate process to empirically evaluate our model. The results showed that the counterpart's speech and the physiological signals had a positive impact on predicting the speaker's emotions.

Video & Speech synthesis — Deepbrain AI
Sept. 2021 – Oct. 2021

We produced AI Human through voice conversion using StarGAN-VC and image synthesis using FSGAN. Through the process of analyzing various voice conversion models(CycleGAN, StarGAN-VC, StarGAN-VC2), we improved the quality of voice conversion by analyzing loss terms, number of domain classes, batch size, and iteration. In addition, the average similarity between the source video and the target video was used to facilitate video synthesis.

Digital Therapeutics (DTx) — KAIST
Aug. 2020 – Sept. 2021

We develop fundamental technologies of data-driven digital therapeutic, receptivity optimization for mobile digital therapeutic development. Furthermore, we analyze the effectiveness of digital treatments by applying causal analysis.

Smart Mask — KAIST
Jan. 2021 – July. 2022

We review existing types of smart masks and study what sensor data can be collected through smart masks. Also, we develop emotional and stress monitoring algorithms through smart mask sensor data.

Contact Tracing — KAIST
Aug. 2020 – Dec. 2020

We develop risk scoring algorithms that can be used for analysis to detect BLE contact between client devices. In addition, the need to introduce a place beacon is increasing as the number of cases infected with COVID increases just by staying in the same place without having to contact the confirmed patient directly. We also identify the coverage that place beacon can effectively send and receive signals with client devices.

AWARDS AND HONORS

Best Paper Award (Korean Institute of Information Technology Paper Competition) *2022*
President Award (Top 10 World-changing Projects) | HGU *2020*
Best Paper Award (National Technology Policy Paper Competition) | IITP & KOTIS *2019*
Best Paper Award (Korea Society for Innovation Management & Economics Paper Competition) *2019*
Academic Top Scholarship for Seniors | HGU *2019*
Academic Excellence Scholarship for Juniors | HGU *2018*
Academic Excellence Scholarship for Sophomores | HGU *2017*
Academic Excellence Scholarship for freshmen | HGU *2016*

CONFERENCES

[1] **Yongshin Kim**, Taehee Lee, Sanghyeon Jung, Chanjae Lee, Taewan Kwon, "*Improving Cloud FAQ Experience through Contrastive Learning-based Inquiry Classification*", Korea Computer Congress, Jeju Island, Korea (2023)

[2] **Yongshin Kim**, Sanghyeon Jung, Chanjae Lee, Jinhee Kim, "*Baseline of SWOT Classification using Bidirectional Encoder Representations from Transformers for Business Intelligence Cloud Platform*", Korean Institute of Information Technology, 2022 Fall Conference, Jeju Island, Korea (2022) – Best Paper Award

[3] **Yongshin Kim**, Panyu Zhang, Gyuwon Jung, Heepyung Kim, Uichin Lee, "*Causal Analysis of Observational Mobile Sensor Data: A Comparative Study*", Korea Computer Congress, 2021 Spring Conference, Jeju Island, Korea (2021)

[4] Haejun Jung, **Yongshin Kim**, Doohee Chung, "*The Effect of Intellectual Property-Based Startups on Employment*", Korea Technology Innovation Society, 2019 Fall Conference, Jeju Island, Korea (2019) – Best Paper Award

[5] SeungLin Yang, **Yongshin Kim**, Doohee Chung, "*Nonlinear Relationship Between Technological Entrepreneurship and National Competitiveness: The Moderation Effect of Innovation-driven Economy*", Korea Society for Innovation Management & Economics, 2019 Spring Conference, Daejeon, Korea (2019) – Best Paper Award

PATENTS

[1] Jung. S, Kwon. T, Lee. T, **Kim. Y**, Lee. C, Kim. J, "A CREATION MODULE FOR AUTOMATIC SWOT ANALYSIS TOOL USING ARTIFICIAL INTELLIGENCE AND A SWOT ANALYSIS SYSTEM COMPRISING THE SAME"
KR - Application No.10-2022-0179834

[2] Jeong. K, **Kim. Y**, Ahn. S, Lee. T, Kim. Y, Kim. M, "A CLOUD SERVER OPERATING SYSTEM IMPLEMENTING INDIVIDUAL VIRTUALIZATION OF RESOURCES AND A METHOD FOR OPERATING CLOUD SERVER"
KR - Application No.10-2022-0190619

[3] **Kim. Y**, Lee. T, Jung. S, "AN INQUIRY MANAGEMENT SYSTEM USING CLASSIFICATION METHOD BASED IN CLOUD SERVICE AND A PATFORM FOR INQUIRY-RESPONSE INTEGRATED MANAGEMENT"
KR - Application No.10-2023-0077742

COMPUTER SKILLS

Python (Intermediate), R (Intermediate), SPSS (Intermediate), MS Office (Intermediate), SQL (Basic), STATA (Basic), AMOS (Basic), SAS (Basic)

Updated 1 July, 2023