

# Yongshin Kim

Motto: “Always learning”

Sep. 1<sup>st</sup> 2022

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## RESEARCH INTEREST

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

## EDUCATION

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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

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[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

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### Work Experience

Machine Learning Engineer

Okestro

Sep. 2022 –

### 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 (Advisor: Heonjoo Kim)	HGU <i>Aug. 2019 – Feb. 2020</i>
Business Information Technology Practice (Teaching Assistant) (Advisor: I-Soo Joe)	HGU <i>Mar. 2018 – Jul. 2018</i>
Principles of Accounting (Tutoring for foreigner) (Advisor: Hyunmo Sung)	HGU <i>Sept. 2017 – Dec. 2017</i>

## Other Experience

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

## PROJECTS

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### Research Projects

Emotion Recognition (Master Thesis)	KAIST <i>Oct. 2021 – July. 2022</i>
<ul style="list-style-type: none"> <li>- 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.</li> </ul>	

Video & Speech synthesis	Deepbrain AI <i>Sept. 2021 – Oct. 2021</i>
<ul style="list-style-type: none"> <li>- 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.</li> </ul>	

Digital Therapeutics (DTx)	KAIST <i>Aug. 2020 – Sept. 2021</i>
<ul style="list-style-type: none"> <li>- 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.</li> </ul>	

Smart Mask	KAIST <i>Jan. 2021 – present</i>
<ul style="list-style-type: none"> <li>- 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.</li> </ul>	

Contact Tracing	KAIST <i>Aug. 2020 – Dec. 2020</i>
<ul style="list-style-type: none"> <li>- 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</li> </ul>	

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.

## Course Projects

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|---|-------------|
| [KSE531] Human-Computer Interaction: Theory and Design  | KAIST       |
| - “Step-by-step Self-reliant Thinking with CAN(Communicative Art Network)”                      | Spring 2021 |
| [KSE526] Analytical Methodologies for Big Data  | KAIST       |
| - “EFNet: Attention based CNN-LSTM Networks for Energy Usage Forecasting with External Factors” | Fall 2020   |
| [KSE801] Special Topics in Intelligent Service Engineering (Sensor Data Science)                | KAIST       |
| - Emotion recognition with mobile phone & wearable sensor data                                  | Fall 2020   |

## AWARDS AND HONORS

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| 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, Panyu Zhang, Gyuwon Jung, Heebyeom Kim, Uichin Lee, “*Causal Analysis of Observational Mobile Sensor Data: A Comparative Study*”, Korea Computer Congress, 2021 Spring Conference, Jeju Island, Korea (2021)
- [2] 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
- [3] 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

## COMPUTER SKILLS

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