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Professor Hong Kook Kim's team won the Best Paper Award at the 30th Joint Signal Processing Academic Conference

- GIST (Gwangju Institute of Science and Technology, President Kiseon Kim) School of Electrical Engineering and Computer Science Professor Hong Kook Kim (Artificial Intelligence Graduate School adjunct) led a research team received the Best Paper Award at the Joint Signal Processing Academic Conference, the nation's top-notch academic event in the field of signal processing.
 - The Joint Signal Processing Conference, which marks the 30th this year, is a venue for presenting and discussing various research results in the field of signal processing, and is the best-in-class academic event in Korea. Four academic societies, including the Korea Institute of Electronics Engineers, the Acoustical Society of Korea, the Korea Communications Society, and the Korean Broadcasting Engineering Society, jointly hosted and held the online event for two days from September 24 to 25.
 - In particular, a total of 76 papers, including oral presentations, invitational presentations, and poster presentations, were presented under the theme of signal processing research results and theories, including artificial intelligence technologies that are being applied to industrial, engineering, and science fields.
- The paper "Variational Autoencoder Based on Fuzzy Discrete Learning," which incorporates VQ-VAE (Vector Quantised-Variational AutoEncoder), was led by

GIST Professor Hong Kook Kim (corresponding author) and conducted by integrated student Dong Keon Park (first author). VQ-VAE is a method that has been actively studied recently because it has the advantage of generating discrete latent variables, which makes it easy to interpret and handle data distributions, and allows for easier estimations of prior probabilities.

- The research team received the honor of receiving the best paper award by proposing a model that creates a meaningful data representation method while maximizing the use of the codebook by passing the distance information from the codebook to the decoder in a linear combination.

□ Professor Hong Kook Kim said, "In-depth discussion and research on the source technology for deep learning used to express signals is more important than ever for the 4th Industrial Revolution. This research is important because it can create more meaningful data representation than existing technologies, and it is highly likely to be used as transfer learning, especially for downstream work."

- Integrated student and first author Dong Keon Park said, "The application of fuzzy theory to VQ-VAE, which has been actively studied recently, seems to have won a big award in line with the interest of the Joint Signal Processing Academic Conference. In the future, I want to develop related research to prove the validity and utility of the research and become a researcher who will be able to help other researchers."



▲ Best Paper Award at the 30th Joint Signal Processing Academic Conference: GIST Professor Hong Kook Kim (corresponding author) and integrated student Dong Keon Park (first author)