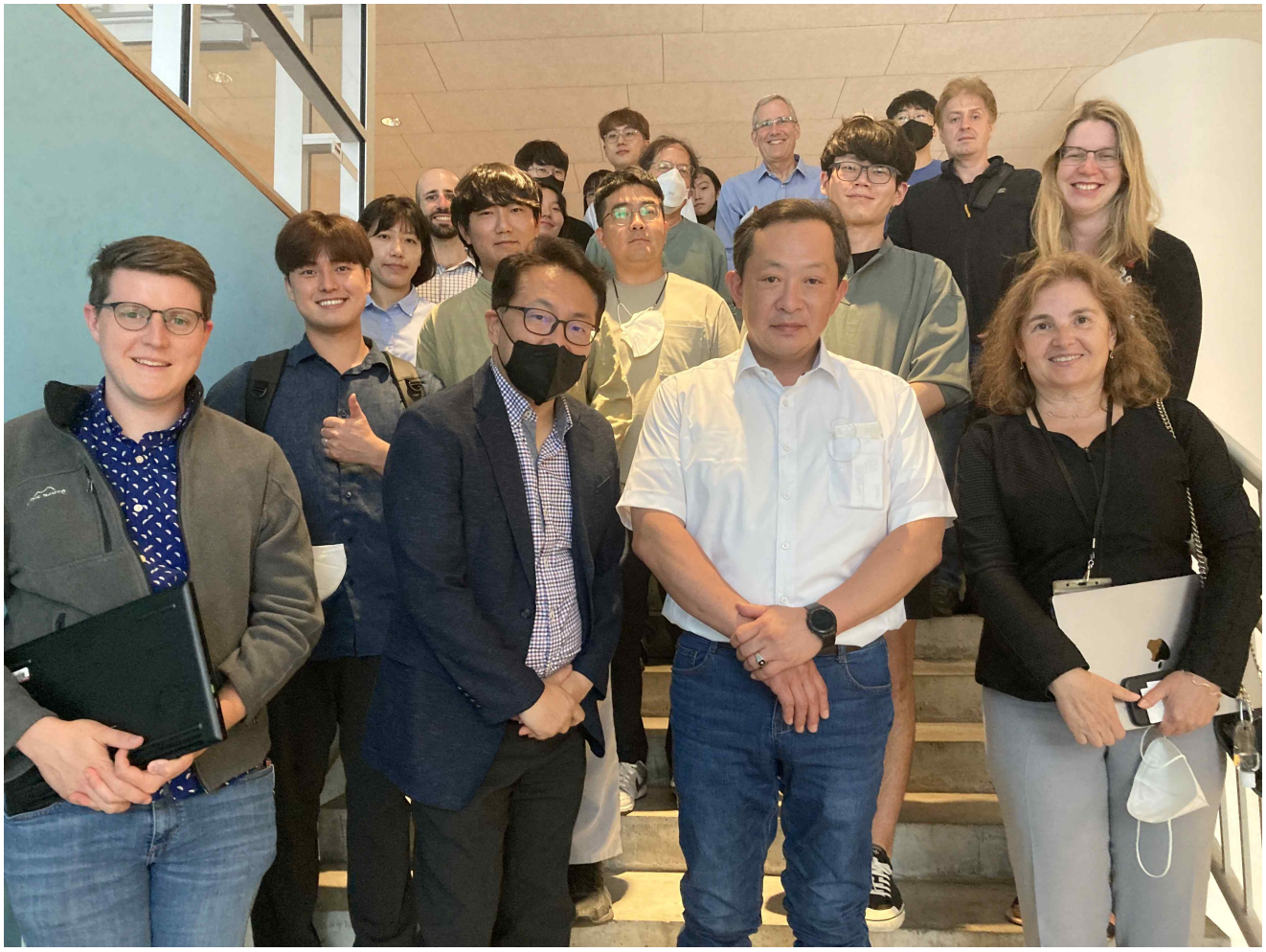
GIST – MIT to hold joint research workshop in the field of artificial intelligence

– Held a joint research interim report and joint committee with the MIT Computer Science and Artificial Intelligence Lab (CSAIL)
– Share research know-how and contribute to nurturing AI talent by conducting a total of 6 joint research projects



▲ Participants from both institutions take a commemorative photo at the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL) where the GIST-MIT International Joint Research Workshop event was held. (From the right in the front row of the photo, Prof. Diniela Rus, director of MIT CSAIL, Prof. GIST Office of Planning Dean Zee-Yong, and GIST Office of Research Dean Prof. Kihong Park

GIST (Gwangju Institute of Science and Technology, President Kiseon Kim) and the Massachusetts Institute of Technology (MIT) are conducting joint research in the field of artificial intelligence (AI) and had an online workshop in the United States from the night of July 7th (Thursday) to the dawn of the 8th (Friday), Korean time for interim evaluation of joint research and discussion of future cooperation plans.

<GIST-MIT AI International Cooperation Project> is a human resource exchange project for science and technology research in which a research team composed of researchers from two universities forms a research group in a matching method to maximize the synergistic effect of AI convergence research and performs joint research tasks.

GIST and MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL)* signed a research agreement last year to promote joint research worth 20 billion won for a total of 5 years until 2025. Currently, a total of 6 research projects have been selected and carried out.

* CSAIL (Computer Science and Artificial Intelligence Laboratory): MIT Computer Science and Artificial Intelligence Laboratory. Founded in 2003 by the merger of the MIT Computer Science Research Center and the Artificial Intelligence Research Center, it is a world-class research institute in the field of artificial intelligence, the largest of any single research institute in MIT. It has about 900 researchers and has produced 10 winners of the Turing Prize, which is called the Nobel Prize in computing. The annual research cost is approximately KRW 76 billion, and active research is being conducted in the field of artificial intelligence such as Algorithms & Theory, AI & ML, Graphics & Vision.

This workshop was held at MIT CSAIL from 23:00 on Thursday, July 7 to 05:00 on Friday, the 8th (local time on the 7th (Thurs) in the U.S.) in an online/offline hybrid method. Participants explored the developmental direction of the joint research through Q&A and discussion of special issues.

At the interim presentation to check the progress of the joint research project, the person in charge of each research shared the progress and received feedback from the participating researchers and members of the 'Gist-MIT Joint Committee.'

The following GIST-MIT joint committee discussed ways to promote research cooperation more actively, such as allocating space for joint researchers, as well as discussing the research specifics mentioned in the mid-term presentation.

▲ Prof. Daniela Rus, director of the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL), is explaining the joint research project at the GIST-MIT International Joint Research Workshop.

The joint research is carried out in a way that a research team (4-6 people per team) composed of 2-3 research directors and participating researchers from each university forms a research group to carry out a joint research project.

Currently GIST is carrying out a total of six joint research projects with MIT, including ▲ Professors SeungJun Kim, Jin Hyuk Hong, and Kyung-Joong Kim, 'AI for Human Computer Interaction in Education' ▲ Professors Young Min Song, Hae-Gon Jeon, and Hyeon-Ho Jeong, 'Artificial Compound Eye with Artificial Intelligence (ACE.A.I) for Enhanced Sensing' ▲ Professors Hong Kook Kim and Jeany Son, 'Extending Contrastive Learning to New Data Modalities and Resource-Limited Devices' ▲ Professors Joo-Hyoung Lee, Sanghan Lee, Kwang Sup Eom, and Bong Joong Kim, 'AI for Energy: Designing High-performance Catalysts and Electrodes for Efficient Hydrogen Production' ▲ Professor Jongho Lee and Jae Hun Seol, 'AI-Driven Soft Robot Skin for Recognition, Modeling, and Exploration' ▲ Professor Sunjae Lee, Ji-Hwan Park, and Young-Joon Kim, 'AI-driven discovery of co-evolutions of hostmicrobiome interactions & representation learning for biological data'.

As a result of the joint research between GIST and MIT, a paper by one of the joint research teams will soon be published in a sister journal of the international scientific journal *Nature*.

<표> GIST-MIT AI 국제협력사업 공동 연구 주제 및 연구자 현황

구분	공동 연구 주제*(*발표순)*	지스트 연구자	MIT 연구자
1	AI-Driven Soft Robot Skin for Recognition, Modeling, and Exploration	이종호, 설재훈	Daniela Rus, Stefanie Mueller
2	AI-driven discovery of co-evolutions of hostmicrobiome interactions & representation learning for biological data	이선재, 박지환, 김영준	Yoon Kim Marzyeh Ghassemi
3	AI for Energy: Designing High-performance Catalysts and Electrodes for Efficient Hydrogen Production	이주형, 이상한, 엄광섭, 김봉중	Tommi Jaakkola, Regina Barzilay
4	AI for Human Computer Interaction in Education	김승준, 김경중, 홍진혁	Daniela Rus, Wojciech Matusik
5	Extending Contrastive Learning to New Data Modalities and Resource-Limited Devices	김홍국, 손진희	Dina Katabi, Piotr Indyk
6	Artificial Compound Eye with Artificial Intelligence (ACE.A.I) for Enhanced Sensing	송영민, 전해곤, 정현호	Fredo Durand, William T Freeman

GIST and MIT are cooperating not only in joint research, but also in fostering AI experts through exchanges of post-doctoral researchers (Post-Doc.) and graduate students participating in research projects. Professor SeungJun Kim's research team visited MIT in 2021 to directly check the core technology required for joint research and participate in sensor production. A visiting group consisting of 8 graduate students and 2 undergraduate students participated in this workshop as well.

GIST President Kiseon Kim said, "Joint research and human resource exchange with MIT is expected to contribute greatly to the sharing of excellent research know-how in the AI field as well as to fostering experts. We hope that holding the first joint workshop will serve as a foundation for conducting creative and innovative research."

▲ Panoramic view of the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL) where the GIST-MIT International Joint Research Workshop was held