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GIST Blockchain Intelligence Convergence Center selected as a new 2021 University ICT Research Center (ITRC)

□ GIST (Gwangju Institute of Science and Technology) was awarded by the Ministry of Science and ICT as the host university for the 2021 University ICT Research Center (ITRC).

◦ The Ministry of Science and ICT is operating a university ICT training and supporting project which aims to nurture ICT innovative specialists through cutting-edge research projects in promising fields of ICT technologies. This year, a total of eight new national centers were awarded and announced on the 5th of July, 2021, in the areas of Internet of Things, Blockchain Foundation Technology, Computing Systems, Digital Contents, Next-Generation Mobile Communications, Next-Generation Communications Networks, Artificial Intelligence Semiconductors, and Quantum Information Communications.

□ Three research teams from four universities, GIST, Korea University, Seoul National University and Ajou University, have been formed and they will work together for up to 8 years until December 2028 in the center whose official name is given to be Blockchain Intelligence Convergence (BIC) center. The director of the center is Professor Heung-No Lee, School of Electrical Engineering and
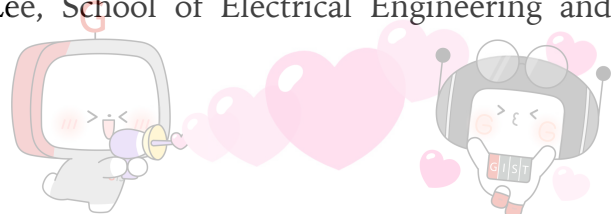
Computer Science, GIST. It will receive research funds in the amount of 6 billion won from the government and 200 million won from Gwangju metropolitan city.

□ The goal of this project is to develop education programs to bring up advanced master's and doctoral level scholars who will be trained fluent in the novel technologies proposed in the center such as Zero-Knowledge Sensing*, Cryptographic Authentication, and Resilient Clouds.

  * Zero-Knowledge Sensing (ZKS) is referred to as a novel technology invented in the center which aims at preserving physical uniqueness of real world signals such as human voice, radio waves, and visual feeds while protecting personal information, when these signals are converted into data via relevant sensors.

  ○ Under a ZKS scheme, the sensed data is appended with a small check which provides means to prove, and be used in verification, that there is no forgery nor alteration made in the process of sensing and digitization. The BIC will build a global network of experts in the areas including artificial intelligence, blockchains, and cloud computing through international and industry-academia-research cooperations.

  ○ The BIC center has prominent researchers and professors who are experts in various fields such as Cryptography, Security, Authentication, Federated Learning, and Cloud Computing.

□ The advisory board of the BIC center includes experts from GIST AI Research Institute, AI Graduate School, the Korean Blockchain Startup Association, the Korean Seoul Blockchain Support Center, the Swiss Asia Crypto Alliance (SACA), City Labs Co., , and LSWare Co., Consensys Co., FutureSense Co., Hexlant Co., the Korean ICT Convergence Association, the Korean Financial ICT Convergence Society, the Korean Blockchain Society, and the Korean Blockchain Law Association.

□ The research of the BIC center is divided into three projects. ▲The first one is the innovative leap forward project, "Decentralized high-performance distributed ledger technology development for zero-knowledge sensing." ▲The second is "Edge computing-based blockchain service infrastructure technology." ▲ The

third is "Decentralized identity authentication (DID) blockchain-based IoT authentication and security technology development."

◻ The director Heung-No Lee said, "The core of blockchain intelligence convergence technology is to use the sensed information in a reliable, transparent, and safe manner and create optimized resource management environment based on the network of artificial intelligence and blockchain internet. With challenging research projects offered in the BIC center, we will strive to bring up young students who can create new knowledge, testing these knowledge via venture startups, and extending the human frontier in the space of digital universe."

▲ Blockchain Intelligence Convergence Center Director Heung-No Lee

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