

Dr. Taesoon Kim, a graduate of GIST's Department of Mechanical and Robotics Engineering, appointed as a professor in the School of Aerospace Engineering at Gyeongsang National University

- An aerospace researcher with experience in large-scale high-performance computing (HPC)-based fluid analysis and aircraft engine aerodynamic design, gained through his work at KISTI, RIST, and Hanwha Aerospace

- Provided design grounds for improved flight stability through helicopter rotor blade fluid analysis... Combines theoretical knowledge with industrial experience in the fields of aircraft engines and turbomachinery



▲ Dr. Taesoon Kim, a graduate of the Department of Mechanical and Robotics Engineering at GIST (currently an assistant professor in the School of Aerospace Engineering at Gyeongsang National University)

Gwangju Institute of Science and Technology (GIST, President Kichul Lim) announced that Dr. Taesoon Kim, a graduate of the Department of Mechanical and Robotics Engineering, has been appointed as an Assistant Professor in the School of Aerospace Engineering at Gyeongsang National University and will begin teaching in the spring semester of the 2026 academic year.

After obtaining a master's degree from the Department of Mechanical Design Engineering at Chungnam National University, Dr. Kim continued his research at Professor Solkeun Jee's laboratory in the School of Mechanical Engineering (currently the Department of Mechanical and Robotics Engineering) at GIST, where he earned his doctoral degree in August 2021.

Since then, he has built a research career spanning both academia and industry, serving as a postdoctoral researcher at the National Supercomputing Center of the Korea Institute of Science and Technology Information (KISTI) (July 2021 – September 2023), a principal researcher at the Pohang Institute of Industrial Science and Technology (RIST) (October 2023 – June 2024), and a senior researcher at Hanwha Aerospace (July 2024 – February 2026).

In particular, during his time at KISTI, he focused on large-scale high-performance computing (HPC)-based numerical analysis research and contributed to precisely elucidating complex fluid phenomena. At Hanwha Aerospace, he accumulated practical experience by performing aerodynamic design and core technology development for advanced aircraft engines and gas turbines.

Dr. Kim's representative research, *Numerical investigation of compressibility effect on dynamic stall**, conducted during his doctoral studies, analyzed the irregular airflow around helicopter rotor blades to provide a basis for designing improved flight stability and efficiency.

As helicopter rotor blades rotate rapidly and change angles, a phenomenon known as "dynamic stall" can occur, where airflow suddenly separates or becomes unstable. This can lead to reduced flight stability and increased fuel consumption.

In this study, the flow across the rotor blade cross-section was precisely analyzed using computer fluid dynamics under specific flight conditions. By predicting the timing and characteristics of airflow instability, the research presented fundamental data for design improvements. The results of this research, in which Dr. Kim participated as the first author, were published in the October issue of the international aerospace journal *Aerospace Science and Technology* following an online preprint in June 2020. It is recognized as pioneering research that provides the scientific basis for enhancing flight stability and efficiency when designing helicopter wings.

** dynamic stall: A phenomenon in which lift and stall dynamically change as the flow characteristics alter with variations in the angle of blades, such as helicopter rotor blades.*

Currently, Dr. Kim conducts research in fluid dynamics and numerical analysis, including aerodynamics, turbomachinery, and turbulent flow control, focusing on improving the performance and energy efficiency of next-generation aircraft and aviation engines.

His major research areas include: ▲ design and simulation of high-efficiency aviation engines; ▲ analysis of fluid performance in advanced turbomachinery; and ▲ flow control for next-generation aircraft. He plans to contribute to the cultivation of talent in the aerospace field and the advancement of academia through future research and education.

Dr. Kim stated, "Thanks to the meticulous guidance of my excellent advisor during my time at GIST, I was able to continue on the path of a researcher without losing my dream of aerospace," adding, "Based on the teachings I received at GIST, I will strive to guide students in the future and achieve meaningful results in the field of aerospace."