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Press Release

Schaeffler FAG Foundation supports innovative research projects and student research projects

- “Future Technology Award” supports research into AI-supported friction analysis of rolling bearings with 90,000 euros
- “Innovation Award” for two doctoral theses and bachelor theses
- The Foundation has been supporting science, research and teaching in the field of storage technology for over 40 years

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The Schaeffler FAG Foundation's 2024 "Future Technology Award," endowed with €90,000, goes to Professor Dr. Maja Kobus, Professor Dr. Martin Storath, and Professor Dr. Stephan Sommer from the Technical University of Würzburg-Schweinfurt (THWS). The three scientists will receive the funding to implement their research idea "Deep Learning-Supported Friction Analysis of Rolling Bearing Vibrations."

At the awards ceremony in the “Kugelmühle” restaurant in Schweinfurt, the foundation also honored a total of four outstanding final theses with an “Innovation Award.”

With the "Future Technology Award," the foundation supports highly innovative research projects at universities, colleges, or individual faculties and chairs. "Innovation is one of the core values of the Schaeffler Group. We believe in the power of research and knowledge transfer, as well as the development of people and ideas with potential," said Markus Gambihler, Head of Human Resources at Schaeffler Bearings & Industrial Solutions and Chairman of the Foundation's Board of Directors.

Significantly simplifying friction analysis during operation

With the foundation's funding, the scientists at the Faculty of Applied Natural Sciences and Humanities and Mechanical Engineering can now advance their research. "Our goal is to significantly simplify friction analysis in rolling bearings," says Professor Maja Kobus, adding: "This is of great importance, as the efficiency, service life, and CO2 footprint of rolling bearings are largely determined by friction behavior." Analyzing friction behavior during operation has so far been

very complex, especially. Kobus, Storath, and Sommer want to use vibration data, which can already be obtained relatively easily today, to continuously determine the friction coefficient during rolling bearing operation. The focus is on developing a method based on machine learning algorithms.

Innovation Award for four theses

With the "Innovation Award" and a total of 18,000 euros, the foundation honored two outstanding doctoral theses and two bachelor's theses in technology areas relevant to the foundation's purpose.

First prize in the doctoral thesis category went to Dr. Dominic Bartels, FAU Erlangen-Nuremberg, for his thesis entitled "Laser-based Additive Manufacturing of Case-hardening Steel." Dr. Dominic Bartels focuses on the targeted adjustment of material properties through the introduction of additive particles such as carbon and tungsten carbide in the additive manufacturing processes "laser beam melting from the powder bed" and "laser metal deposition welding." His work is of great importance from a sustainability perspective, as his findings impact the substitution of heat treatment processes and the extension of the service life of rolling bearings.

The second award-winning doctoral thesis is entitled "Transfer Learning for Predictive Maintenance Solutions" and was written by Dr. Sebastian Schwendemann from the Clausthal University of Technology, Institute of Software and Systems Engineering, in cooperation with the Offenburg University of Applied Sciences, Institute for Reliable Embedded Systems Communication Electronics. In his work, Schwendemann addressed the question of the extent to which a sufficiently large amount of labeled, high-quality data is always available for the use of machine learning approaches for predictive maintenance solutions, and how the results can be optimized despite a lack of such data. His approach here is the use of a newly developed level of abstraction in conjunction with transfer learning approaches and the further development of such a system.

In addition, the bachelor's theses "Optimization of additively manufactured rolling bearing outer rings with integrated cooling channels for aviation applications" by Adrian Popp, created at the Technical University of Würzburg-Schweinfurt, Laboratory for Additive Manufacturing of Metallic Materials, and "Numerical analysis of damage criteria based on the critical level for fatigue processes in rolling bearings" by Tarek Hanzouli, created at the Westphalian University of Applied Sciences, Recklinghausen Campus, in the Industrial Engineering program, were awarded.

The awards were presented by Uwe Wagner, Chief Research and Development Officer of Schaeffler AG and member of the Foundation’s Board of Directors, together with Sascha Zaps, Chief Bearings & Industrial Solutions Officer of Schaeffler AG and member of the Foundation’s Board of Directors, and Peter

Schuster, Head of the Sensors Product Group and Managing Director of the Foundation.

About the Schaeffler FAG Foundation:
The Schaeffler FAG Foundation promotes science, research, and teaching in the scientific and technical fields related to bearing technology. The foundation builds a bridge between business and science for the ideas, visions, and goals of people working at universities, in research, and in companies.

In addition to the "Future Technology Award" and "Innovation Award," the foundation offers a third funding line. To inspire young people's interest in technology and related careers at an early age, it supports interdisciplinary projects in the STEM field as part of its program to support schools in the Mainfranken region.

Here you can find further information on the funding opportunities offered by the Schaeffler FAG Foundation: Future Technology Award | Schaeffler Group & Innovation Award | Schaeffler Group

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The winners of the "Future Technology Award" and the "Innovation Award" together with Schaeffler Executive Board members Uwe Wagner (Research and Development), Sascha Zaps (Bearings & Industrial Solutions), and Claus Bauer (Finance and IT), as well as Markus Gambihler, Head of Human Resources Bearings & Industrial Solutions and Chairman of the Foundation's Board of Directors, Peter Schuster, Head of the Sensors Product Group and Managing Director of the Foundation, and Dr. Franz Völkel, Head of R&D Bearings & Industrial Solutions. Photo: Schaeffler (Anand Anders)

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Schaeffler Group – We pioneer motion
The Schaeffler Group has been driving forward groundbreaking inventions and developments in the field of motion technology for over 75 years. With innovative technologies, products, and services for electric mobility, CO_2-efficient drives, chassis solutions, and renewable energies, the company is a reliable partner for making motion more efficient, intelligent, and sustainable – over the entire life cycle. Schaeffler describes its comprehensive range of products and services by means of eight product families: from bearing solutions and all types of linear guidance systems through to repair and monitoring services. With around 120,000 employees and more than 250 locations in 55 countries, Schaeffler is one of the world's largest family-owned companies and ranks among Germany's most innovative companies.

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