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Greater safety in thyroid surgery thanks to artificial intelligence

Federal Ministry of Research, Technology and Space funds new joint project KISMO

At the beginning of November, the KISMO (Artificial Intelligence in Thyroid Surgery for the Analysis of Intraoperative Neurophysiological Monitoring) research project, funded by the Federal Ministry of Research, Technology and Space (BMFTR), was launched. In this three-year joint project, the Fraunhofer Institute for Industrial Mathematics (ITWM), the University Medical Center of Johannes Gutenberg University Mainz and medical technology manufacturer inomed Medizintechnik GmbH are working together to further increase the safety of thyroid surgery with the help of artificial intelligence.

Thyroid surgery carries a considerable risk of injury to the vocal cord nerve. Such injuries can have serious consequences for patients – from permanent voice changes to partial or complete vocal cord paralysis and acute respiratory distress. Intraoperative neuromonitoring (IONM) is already used today to monitor nerve function during surgery. This generates large amounts of complex neurophysiological signal data that surgeons must interpret correctly in a short period of time.

This is exactly where KISMO comes in. The aim of the project is to develop an AI-supported assistance system for the automatic analysis of IONM signal data in real time. The demonstrator is designed to detect critical changes at an early stage and support surgeons in their intraoperative decisions by issuing warnings and recommendations for action. The aim is not only to improve the detection of nerve damage, but also to prevent it from occurring in the first place.

The project will initially analyse retrospectively collected neurophysiological signal data to identify patterns and deviations that could indicate impending nerve damage. Based on these findings, the demonstrator will later enable continuous real-time analysis during surgery and automatically generate suggestions for suitable surgical strategies.

At the kick-off meeting on 28 January 2026, the main topics, work packages and milestones were defined. In the coming months, the project partners will pool their expertise in medicine, medical technology and applied AI research to develop practical solutions for clinical use.

By funding the KISMO project, the BMFTR is making an important contribution to the further development of digitally assisted surgery and to increasing patient safety in thyroid surgery.



With funding from the:



Federal Ministry
of Research, Technology
and Space

Kick-off meeting of the BMFTR-funded KISMO project with employees of Fraunhofer ITWM, University Medical Center of Johannes Gutenberg University Mainz and inomed Medizintechnik GmbH © Fraunhofer ITWM

inomed Medizintechnik GmbH

inomed develops, manufactures and distributes medical technology products in the fields of Intraoperative Neuromonitoring, Functional Neurosurgery and Pain Treatment. For almost 35 years, inomed devices have been helping to improve treatments and increase patient safety. The inomed group has over 450 employees, eleven subsidiaries and a large network of trained distributors in more than 100 countries.

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