Lernende Systeme

GERMANY'S PLATFORM FOR ARTIFICIAL INTELLIGENCE

AI for Healthcare Professionals

White Paper

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Medical Technology, Care

Executive Summary

Whether in diagnostics, in improving quality of care, or in the form of smart rollators, Artificial Intelligence (AI) can support patients, and medical as well as nursing professionals in many ways. For specialists in particular, AI systems offer promising opportunities to make diagnoses more precise, to adapt treatment methods to individual needs, and to make administrative processes more efficient. Relief from time-consuming routine activities through AI can thus enable professionals to organize their activities more self-determined and to use their capacities for the direct interaction with patients. There are high expectations regarding AI systems, especially in areas with complexly structured, repetitive tasks. In order to make the best possible use of this potential, the digitization of the healthcare system must proceed – especially when it comes to securely recording and processing patient data.

AI applications could also help to counteract the lack of qualified personnel and increase employee satisfaction. After all, the lack of skilled workers, the constant overwork of healthcare professionals, and the inadequate pay of many caregivers are factors leading to a shortage of skilled personnel in hospitals, nursing facilities, and doctors' offices.

Transformation of the Healthcare Sector and use of AI

The use of AI systems holds great potential, particularly in the various sub areas of the healthcare sector. For example, AI systems can help to improve the quality of care for patients undergoing medical treatment or nursing care. Diagnoses can be made more precisely and treatment methods can be adapted to individual needs. Administrative processes – for example in hospitals, medical practices, care facilities or even ambulatory contexts – can also be made more effective and efficient with AI. Medical and nursing staff benefit most when the use of AI has a direct positive impact on their daily work and working conditions. They can be unburdened of time-consuming routine tasks in their day-to-day work and organize their activities more self-determined and closer to the people if certain areas are taken over by smart machines. Especially in times of frequent overwork of many skilled workers, with a simultaneous shortage of skilled workers, this benefit factor of AI seems particularly relevant.

Whether in the context of prediction models for graft losses (e.g., kidney transplants) or robotics-applications for the mobility of severely injured patients – AI systems are already being successfully researched and used in various areas. In the diagnosis of diseases (e.g., in radiology) AI systems can also interpret images (e.g., X-rays) mostly faster and more accurately than humans. Beyond that AI can derive evidence-based diagnostic suggestions, which in turn can be used by specialists to make qualified and validated decisions. A wide range of applications are currently being developed and tested. A prerequisite for the successful use of such AI systems in everyday clinical practice are sufficiently large and representative data sets with which the algorithms are trained and validated.

However, it cannot be assumed that AI will be able to take over all the tasks of humans or trained specialists in the healthcare sector. Quite the opposite, AI systems can be used primarily in contexts in which tasks can be performed in a repetitive and structured manner, allowing humans to better focus on uniquely human activities.

The more appropriately AI applications are used in medicine, the sooner transformation of healthcare begins. In the course of this transformation, the way in which diagnoses are made, treatments are carried out and processes are structured will change.

AI use in Medicine and Care – Assessments and Needs of Healthcare Professionals

Another key prerequisite for exploiting the potential of AI is that not only the perspectives of patients and those in need of care are taken into account in the development and application of AI, but that the perspectives of healthcare professionals are also heard. To this end, the working group Health Care, Medical Technology, Care of the Plattform Lernende Systeme conducted a qualitative survey in March 2022 as part of an interactive roundtable process on the question "What does AI bring to health professionals?".

The survey results make it clear that many nursing and medical professionals see key opportunities in AI for improving the overall quality of care for patients, improving therapy options, and for more precise diagnostics. At the same time, many of them are dissatisfied with current working conditions, which is linked to a worsening shortage of healthcare professionals. Against this background, AI could help to relieve the burden of routine work. There is also concern that skilled workers could be replaced by technology. In practice, however, the use of AI in healthcare is primarily about providing the best possible support for existing specialized staff in order to counteract the shortage of specialists. To this end, competencies in dealing with data, digital technologies and AI must be continuously built up in a targeted manner. Other challenges include the concrete implementation of AI-based tools in everyday work and the design of the infrastructure for AI.

Based on the survey results, key recommendations for the use of AI in healthcare can be derived from the study. In addition to the creation of sufficient qualification opportunities for professionals to increase their AI competencies, they also point to the importance of secure access to high-quality data and the closer integration of healthcare professionals in the (further) development and implementation of AI systems.

Imprint
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