

FRAUNHOFER INSTITUTE FOR ALGORITHMS AND SCIENTIFIC COMPUTING SCAI

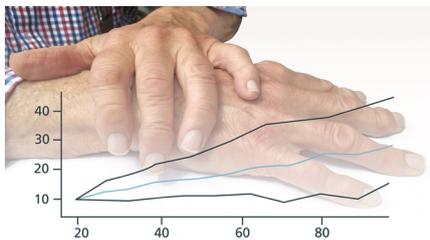
PRESS RELEASE

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May 31, 2021

AI and digital technology improve diagnosis and treatment of Parkinson's disease

The treatment of people who have Parkinson's disease can be improved significantly by using digital techniques. The DIGIPD project explores how artificial intelligence can contribute to a better individualized treatment of the disease, for example, by analysis of sensor data or automatically detected changes in speech, facial expressions, or movements.



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**DIGIPD**

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Parkinson's disease affects seven to ten million patients in Western societies – with an upward trend. Patients suffer from symptoms such as tremors, gait and speech disorders, and memory loss. Digital technologies have the potential to change the understanding and treatment of Parkinson's disease fundamentally. But before they can be implemented in clinical practice, their benefits for patients need to be evaluated carefully – this is the aim of the European research project *Validating DIGital biomarkers for better personalized treatment of Parkinson's Disease* (DIGIPD).

In the project, digital biomarkers refer, e.g., to features derived from sensors that monitor a patient's gait. A tiny device can be attached to the shoe of a patient. This device then transmits recordings wirelessly to a tablet. In addition, there are digital biomarkers retrieved from recordings of the voice (also via telephone) and facial movements (via video). The data are collected in clinical studies run at Erlangen, Paris, and Luxembourg and subsequently analyzed by French researchers at the Institut Polytechnique de Paris. Researchers at Fraunhofer SCAI and the University of Luxembourg will further on evaluate all study data jointly using artificial intelligence (AI) methods. This approach should provide valuable information on whether digital biomarkers can help to distinguish between different courses of the disease, whether the evaluations can help predict the course of the disease, and what relationships exist between digital biomarkers and established measurements in Parkinson's. New knowledge gained through this research and the algorithms developed in the project could contribute towards a better individualized

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treatment of patients (precision medicine). Physicians treating patients will benefit from these results, as they will be able to adjust their treatment at an earlier stage and thus positively influence the progression of the disease.

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“DIGIPD puts a lot of emphasis on the analysis of large and complex data sets,” says project coordinator Prof. Dr. Holger Fröhlich. He heads the “AI and Data Science” group at Fraunhofer SCAI. “For this purpose, we use modern methods of artificial intelligence and machine learning, which we have tested and developed in our research work in the field of biomedical data analysis,” explains Fröhlich. An important point here is also investigating data protection and ethical aspects in evaluating patient data using AI. Therefore, also patients are involved into the project.

DIGIPD brings together experts from medicine and informatics in the field of Parkinson’s disease. Partners in the project are the Brain and Spine Institute (ICM) in Paris, the University of Luxembourg, the University Hospital Erlangen, Télécom SudParis (Institute Polytechnique de Paris), the University of Namur in Belgium, Portables GmbH in Erlangen, and the non-profit patient organization „Asociación Parkinson Madrid.”

The project is funded under the European ERA network on personalized medicine, ERA PerMed, in the “Joint Transnational Call 2020”. The German Federal Ministry of Education and Research (BMBF) is funding the German part of the project. DIGIPD starts in May 2021 and has a duration of three years.

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**FURTHER
INFORMATION:**

[HTTPS://S.FHG.DE/DIGIPD-EN](https://s.fhg.de/digipd-en)

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