Prof. Dr. Marcin Grzegorzek

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Scientific Goal

Extracting health-related knowledge from large collections of human data using pattern recognition and machine learning algorithms.

Scientific Fields

Medical Data Science Pattern Recognition Machine Learning Sensor Data Analysis

Selected Functions and Memberships

- ➜ Professor (W3) of Medical Informatics at the University of Lübeck
- ➜ Head of the Medical Data Science Lab (MedDS) at the University of Lübeck
- ➜ Head of the APPS Lab (Assessment of Physical and Psychological Signals) at the University of Lübeck
- ➜ Associate Editor of Elsevier Pattern Recognition and Springer Visual Computer Journals
- ➜ Member of the Polish Artificial Intelligence Society
- ➜ Member of the Center for Open Innovation in Connected Health (COPICOH) at the University of Lübeck
- ➜ Member of the German Association for Medical Informatics, Biometry and Epidemiology
- ➜ Member of the Scientific Advisory Board at Perfood GmbH

Academic Employment and Degrees

Since 10/2018	**Professor** (W3) — Institute of Medical Informatics — University of **Lübeck**
10/2016 – 09/2018	**Senior Lecturer** (A14) — Research Group for Pattern Recognition — University of **Siegen**
01/2014	**Habilitation** in Pattern Recognition — AGH University of Science and Technology in **Kraków**
10/2010 – 09/2016	**Assistant Professor** (W1) — Research Group for Pattern Recognition — University of **Siegen**
03/2008 – 09/2010	**Research Assistant** — Institute for Web Science and Technologies — University of **Koblenz**-Landau
04/2007	**Doctorate with Distinction** in Pattern Recognition — University of **Erlangen**-Nürnberg
07/2006 – 02/2008	**Research Assistant** — Multimedia & Vision Research Group — Queen Mary University of **London**
12/2002 – 06/2006	**Doctoral Student** — Pattern Recognition Lab — University of **Erlangen**-Nürnberg
11/2002	**M.Sc.** in Computer Science — Silesian University of Technology in **Gliwice**

Selected Publications

Google Scholar:	https://scholar.google.de/citations?user=afSJW1IAAAAJ&hl=en
Scopus:	https://www.scopus.com/authid/detail.uri?authorId=6504608152
Web of Science:	https://publons.com/researcher/3377203/marcin-grzegorzek

1. Muhammad Hassan Khan, Muhammad Shahid Farid, and Marcin Grzegorzek. Vision-based Approaches towards Person Identification Using Gait. *Computer Science Review (Elsevier, IF: 7.872)*, 42, November 2021. DOI: 10.1016/j.cosrev.2021.100432.
2. Philip Gouverneur, Frédéric Li, Wacław Adamczyk, Tibor Szikszay, Kerstin Lüdtke, and Marcin Grzegorzek. Comparison of Feature Extraction Methods for Physiological Signals for Heat-based Pain Recognition. *Sensors (MDPI, IF: 3.576)*, 21(14), July 2021. DOI: 10.3390/s21144838.
3. Xinyu Huang, Kimiaki Shirahama, Frédéric Li, and Marcin Grzegorzek. Sleep Stage Classification for Child Patients Using DeConvolutional Neural Network. *Artificial Intelligence in Medicine (Elsevier, IF: 4.383)*, 110, November 2020. DOI: 10.1016/j.artmed.2020.101981.
4. Frédéric Li, Kimiaki Shirahama, Muhammad Adeel Nisar, Xinyu Huang, and Marcin Grzegorzek. Deep Transfer Learning for Time Series Data Based on Sensor Modality Classification. *Sensors (MDPI, IF: 3.275)*, 20(15), July 2020. DOI: 10.3390/s20154271.
5. Muhammad Adeel Nisar, Kimiaki Shirahama, Frédéric Li, Xinyu Huang, and Marcin Grzegorzek. Rank Pooling Approach for Wearable Sensor-based ADLs Recognition. *Sensors (MDPI, IF: 3.275)*, 20(12), June 2020. DOI: 10.3390/s20123463.
6. Sergey Kosov, Kimiaki Shirahama, Chen Li, and Marcin Grzegorzek. Environmental Microorganism Classification Using Conditional Random Fields and Deep Convolutional Neural Networks. *Pattern Recognition (Elsevier, IF: 5.898)*, 77(5):248–261, May 2018. DOI: 10.1016/j.patcog.2017.12.021.

Selected Projects

1. MoveGroup Junior Research Group: Integration and Analysis of Multimodal Sensor Signals for Investigating Neurological Movement Disorders. German Federal Ministry of Education and Research (BMBF). 10/2021 – 09/2026.
2. INDICATE-FH: Improving Diagnostics and Therapy of Food Hypersensitivity. Leader of the WP "Digital Marker: Wearable-based Food Hypersensitivity Recognition". German Federal Ministry of Education and Research (BMBF). 07/2021 – 06/2024.
3. ScreenFM: Sensor-based Assessment of Infants' Neurological Development Based on Fidgety Movements. Leader of the WP "Learning-based Pattern Recognition Algorithms and Their Evaluation". German Federal Ministry of Education and Research (BMBF). 05/2021 - 12/2023.
4. My-AHA: My Active and Healthy Ageing. Leader of the WP "Data Fusion and Analytics". European Commission, Horizon 2020. 01/2016 – 03/2020.
5. SenseVojta: Sensor-based Diagnosis, Therapy and Aftercare According to the Vojta Principle. Leader of the WP "Sensor-based Recognition of Reflex Patterns". German Federal Ministry of Education and Research (BMBF). 12/2016 – 02/2020.
6. CogAge: Cognitive Village – Adaptively Learning Technical Assistance for Elderly. Consortium Coordinator and Leader of the WP "Adaptive Data Interpretation". German Federal Ministry of Education and Research (BMBF). 09/2015 – 11/2018.

Supervised Doctorates

1. Muhammad Adeel Nisar. Sensor-based Human Activity Recognition for Assistive Health Technologies. Exam: 06/2022.
2. Frédéric Li. Deep Transfer Learning for Time-series Classification. Exam: 09/2021.
3. Frank Ebner. Smartphone-Based 3D Indoor Localization and Navigation. Exam: 09/2020.
4. Ahmad Delforouzi. New Approaches for Object Tracking and Image-based Quality Control. Exam: 07/2020.
5. Muhammad Hassan Khan. Human Activity Analysis in Visual Surveillance and Healthcare. Exam: 09/2018.
6. Lukas Köping. Probabilistic Fusion of Multiple Distributed Sensors. Exam: 09/2018.
7. Sergey Kosov. Multi-layer Conditional Random Fields for Revealing Unobserved Entities. Exam: 07/2018.
8. Zeyd Boukhers. 3D Trajectory Extraction from 2D Videos for Human Activity Analysis. Exam: 09/2017.
9. Cong Yang. Object Shape Generation, Representation and Matching. Exam: 09/2016.
10. Christian Feinen. Object Representation and Matching Based on Skeletons and Curves. Exam: 03/2016.
11. Chen Li. Content-based Microscopic Image Analysis. Exam: 02/2016.