Prof. Dr. Marcin Grzegorzek

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Scientific Goal

Profiling humans and their environments using knowledge-based and data-driven pattern recognition algorithms.

Scientific Fields

Data Science   Pattern Recognition   Machine Learning   Knowledge Engineering

Selected Functions and Memberships

➜ Professor (W3) of Medical Informatics leading the Medical Data Science Team at the University of Lübeck

➜ Head of the Innovation Incubator Pattern Recognition at Fraunhofer IMTE in Lübeck

➜ Member of the Scientific Advisory Board at Perfood GmbH in Lübeck

➜ Professor at the Department of Knowledge Engineering at the University of Economics in Katowice

➜ Member of the International Advisory Board of the Priority Research Area 1 "Computational Oncology and Personalised Medicine" at the Silesian University of Technology in Gliwice within the Polish Research Excellence Initiative

➜ Associate Editor of Elsevier Pattern Recognition and Springer Visual Computer Journals

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

1. Muhammad Hassan Khan, Muhammad Shahid Farid, and Marcin Grzegorzek. A Comprehensive Study on Codebook-based Feature Fusion for Gait Recognition. *Information Fusion (Elsevier, IF: 17.564)*, 92:216–230, December 2022. DOI: 10.1016/j.inffus.2022.12.001.

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: 5.326)*, 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: 3.576)*, 20(15), July 2020. DOI: 10.3390/s20154271.

5. 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: 7.740)*, 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. **Main Applicant and Overall Coordinator**. German Federal Ministry of Education and Research (BMBF). 10/2021 – 09/2026. Overall Budget: 1,431,000 €.

2. KIBA: AI-Assisted Movement Analysis and Therapy. **Main Applicant and Overall Coordinator**. European Regional Development Fund. 01/2022 – 06/2023. Overall Budget: 1,340,000 €.

3. CogAge: Cognitive Village – Adaptively Learning Technical Assistance for Elderly. **Main Applicant and Overall Coordinator**. German Federal Ministry of Education and Research (BMBF). 09/2015 – 11/2018. Overall Budget: 3.615.000 €.

4. INDICATE-FH: Improving Diagnostics and Therapy of Food Hypersensitivity. Principal Investigator and Leader of the Sub-project "Digital Marker: Wearable-based Food Hypersensitivity Recognition". German Federal Ministry of Education and Research (BMBF). 07/2021 – 06/2024.

5. My-AHA: My Active and Healthy Ageing. Principal Investigator and Leader of the Work Package "Data Fusion and Analytics". European Commission, Horizon 2020. 01/2016 – 03/2020.

6. GRK 1564: Research Training Group 1564 "Imaging New Modalities". Principal Investigator Leader of the Subproject "Multimodal Scene Analysis". German Research Foundation (DFG). 10/2010 – 09/2018.

Supervised Doctorates

1. Xinyu Huang. Sensor-Based Sleep Stage Classification Using Deep Learning. Exam: 11/2022.

2. Muhammad Adeel Nisar. Sensor-based Human Activity Recognition for Assistive Health Technologies. Exam: 06/2022.

3. Frédéric Li. Deep Transfer Learning for Time-series Classification. Exam: 09/2021.

4. Frank Ebner. Smartphone-Based 3D Indoor Localization and Navigation. Exam: 09/2020.

5. Ahmad Delforouzi. New Approaches for Object Tracking and Image-based Quality Control. Exam: 07/2020.

6. Muhammad Hassan Khan. Human Activity Analysis in Visual Surveillance and Healthcare. Exam: 09/2018.

7. Lukas Köping. Probabilistic Fusion of Multiple Distributed Sensors. Exam: 09/2018.

8. Sergey Kosov. Multi-layer Conditional Random Fields for Revealing Unobserved Entities. Exam: 07/2018.

9. Zeyd Boukhers. 3D Trajectory Extraction from 2D Videos for Human Activity Analysis. Exam: 09/2017.

10. Cong Yang. Object Shape Generation, Representation and Matching. Exam: 09/2016.

11. Christian Feinen. Object Representation and Matching Based on Skeletons and Curves. Exam: 03/2016.

12. Chen Li. Content-based Microscopic Image Analysis. Exam: 02/2016.