Prof. Dr. Marcin Grzegorzek

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Scientific Goal

Extracting health-related knowledge from multimodal sensor data using pattern recognition and machine learning algorithms.

Scientific Fields

Medical Data Science Pattern Recognition Machine Learning Sensor Data Analysis Pervasive Computing

Medical Data Science Team

M.Sc. Adeel Nisar	M.Sc. Frank Ebner	M.Sc. Philip Gouverneur
Prof. Dr. Marcin Grzegorzek	M.Sc. Hawzhin Hozhabr Pour	M.Sc. Xinyu Huang
M.Sc. Tausif Irshad	M.Sc. Frédéric Li	M.Sc. Markus Bullmann
Prof. Dr. Yoji Ochi	M.Sc. Raoul Hoffmann	M.Sc. Toni Fetzer

Academic Employment and Degrees

Since 10/2018	**Professor** (W3); Institute of Medical Informatics; University of Lübeck, Germany
10/2016 – 09/2018	**Senior Lecturer** (A14); Research Group for Pattern Recognition; University of Siegen; Germany
09/2015 – 09/2018	**Associate Professor**; Department of Knowledge Engineering; University of Economics in Katowice; Poland
01/2014	**Habilitation** in Pattern Recognition; AGH University of Science and Technology in Kraków; Poland
06/2013	**Positive Evaluation of the Assistant Professorship**; University of Siegen; Germany
10/2010 – 09/2016	**Assistant Professor** (W1); Research Group for Pattern Recognition; University of Siegen; Germany
03/2008 – 09/2010	**Postdoc**; Institute for Web Science and Technologies (Prof. Steffen Staab) and Active Vision Group (Prof. Dietrich Paulus); University of Koblenz-Landau; Germany
04/2007	**PhD with Distinction** in Pattern Recognition (Supervisor: Prof. Heinrich Niemann); Pattern Recognition Lab; University of Erlangen-Nürnberg; Germany
07/2006 – 02/2008	**Research Assistant**; Multimedia and Vision Research Group (Prof. Ebroul Izquierdo); Queen Mary University of London; UK
12/2002 – 06/2006	**PhD Candidate**; Pattern Recognition Lab (Prof. Heinrich Niemann and Prof. Joachim Hornegger); University of Erlangen-Nürnberg; Germany
11/2002	**M.Sc.** in Computer Science; Silesian University of Technology in Gliwice; Poland

Selected Recent Publications

1. Sergey Kosov, Kimiaki Shirahama, and Marcin Grzegorzek. Labeling of Partially Occluded Regions via the Multi-Layer CRF. *Multimedia Tools and Applications (Springer, IF: 2.101)*, 78(2):2551–2569, January 2019. DOI: 10.1007/s11042-018-6298-5.
2. Muhammad Hassan Khan, Manuel Schneider, Muhammad Shahid Farid, and Marcin Grzegorzek. Detection of Infantile Movement Disorders in Video Data Using Deformable Part-Based Model. *Sensors (MDPI, IF: 3.031)*, 18(10), September 2018. DOI: 10.3390/s18103202.
3. Muhammad Hassan Khan, Julien Helsper, Muhammad Shahid Farid, and Marcin Grzegorzek. A Computer Vision-based System for Monitoring Vojta Therapy. *International Journal of Medical Informatics (Elsevier, IF: 2.731)*, 113:85–95, May 2018. DOI: 10.1016/j.ijmedinf.2018.02.010.
4. 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.
5. Lukas Köping, Kimiaki Shirahama, and Marcin Grzegorzek. A General Framework for Sensor-based Human Activity Recognition. *Computers in Biology and Medicine (Elsevier, IF: 2.286)*, 95:248–260, April 2018. DOI: 10.1016/j.compbiomed.2017.12.025.
6. Przemysław Łagodzinski, Kimiaki Shirahama, and Marcin Grzegorzek. Codebook-based Electrooculography Data Analysis Towards Cognitive Activity Recognition. *Computers in Biology and Medicine (Elsevier, IF: 2.286)*, 95:277–287, April 2018. DOI: 10.1016/j.compbiomed.2017.10.026.
7. Frédéric Li, Kimiaki Shirahama, Muhammad Adeel Nisar, Lukas Köping, and Marcin Grzegorzek. Comparison of Feature Learning Methods for Human Activity Recognition using Wearable Sensors. *Sensors (MDPI, IF: 3.031)*, 18(2), February 2018. DOI: 10.3390/s18020679.
8. Marcin Grzegorzek. *Sensor Data Understanding*. Logos Verlag, Berlin, Germany, 2017.

Selected Recent Projects

1. PainMonit: Multimodal Platform for Pain Monitoring in Physiotherapy. Leader of the Work Package "Pain Monitoring Based on Physiological and Behavioural Data". German Federal Ministry of Education and Research (BMBF). 01/2019 - 12/2021. `http://ixp-duesseldorf.de/portfolio/painmonit`.
2. My-AHA: My Active and Healthy Ageing. Leader of the WP "Data Fusion and Analytics". European Commission, Horizon 2020. 01/2016 – 12/2019. `www.activeageing.unito.it`.
3. 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 – 11/2019. `www.uni-siegen.de/fokos/forschungsprojekte/sensevojta`.
4. ELISE: Development of an Interactive and Emotion-sensitive Learning System for Developing Competence in the Area of Business Process Management. Leader of the WP "Development of a Learning System". 03/2016 – 02/2019. `www.elise-lernen.de`.
5. 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. `www.cognitive-village.de`.
6. GRK 1564: Research Training Group 1564 "Imaging New Modalities". Leader of the Subproject "Multimodal Scene Analysis". German Research Foundation (DFG). 10/2009 – 09/2018. `www.grk1564.uni-siegen.de` .

Supervised Doctorates

1. Muhammad Hassan Khan. Human Activity Analysis in Visual Surveillance and Healthcare. Exam: 13/09/2018.
2. Lukas Köping. Probabilistic Fusion of Multiple Distributed Sensors. Exam: 07/09/2018.
3. Sergey Kosov. Multi-layer Conditional Random Fields for Revealing Unobserved Entities. Exam: 19/07/2018.
4. Zeyd Boukhers. 3D Trajectory Extraction from 2D Videos for Human Activity Analysis. Exam: 26/09/2017.
5. Cong Yang. Object Shape Generation, Representation and Matching. Exam: 26/09/2016.
6. Christian Feinen. Object Representation and Matching Based on Skeletons and Curves. Exam: 10/03/2016.
7. Chen Li. Content-based Microscopic Image Analysis. Exam: 16/02/2016.