

Special Session: Bias in Biometrics

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Session information:

Biometric technologies are ubiquitous in personal, commercial, and governmental applications all around the world, where they represent an integral component of many identity management and access control systems. Biometrics can be used in cooperative systems, where they replace or supplement the knowledge and possession-based methods, as well as in non-cooperative systems such as surveillance and forensics.

Recently, concerns regarding the existence of *systematic bias* in automated decision systems (including biometrics) have been raised by researchers, media outlets, and non-governmental organisations. In this context, a biased algorithm produces statistically different outcomes (decisions) for different demographic groups of individuals, e.g. based on sex, age, and ethnicity. Most prominently, face recognition algorithms have often been labelled as "racist" or "biased".

Current scientific literature w.r.t. this subject within facial recognition is sparse, whereas for other biometric characteristics it is almost non-existent. The elevated societal interest and the potential of very high impact on the lives of individual citizens make research into this emerging area urgently needed.

Topics of interest include, but are not limited to:

- Transparency, explainability, accountability, and fairness in biometrics.
- Estimation of inherent biases in biometric algorithms, including recognition, classification, and quality assessment w.r.t. factors such as sex, age, ethnicity, and image acquisition conditions.
- Bias-aware, bias-mitigating, and bias-free biometric algorithms.
- Balanced training and testing datasets.
- Differential performance in biometric systems.

References:

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Organisers



Pawel Drozdowski is a researcher with the Faculty of Computer Science, Hochschule Darmstadt (HDA), Germany. He currently pursues a Ph.D. degree at Norwegian Biometrics Laboratory (NBL) within the Norwegian University of Science and Technology (NTNU). He coauthored 15 technical publications in the field of biometrics. He is a member of the European Association for Biometrics (EAB) and serves as a reviewer for IET-BMT and IEEE-TIFS journals, as well as the BIOSIG conference. He represents the German Institute for Standardization (DIN) in ISO/IEC SC37 biometrics standardization committee.



Dr. Antitza Dantcheva is a Researcher at the STARS team, INRIA, France. Previously, she was a Marie Curie fellow at INRIA and a Postdoctoral Fellow at the Michigan State University and the West Virginia University, USA. She received her PhD in Signal and Image Processing in 2011 from Telecom ParisTech in France. In 2017 she has received the French National Research Agency (ANR) JCJC young researcher grant for her research project "Automated holistic human analysis". She was the recipient of the Best Presentation Award in ICME2011, the Best Poster Award in ICB 2013, Tabula Rasa Spoofing Award in 2013, Best Paper Award (Runner Up) at the IEEE

ISBA 2017, as well as the Best Poster Award at IEEE FG 2019. She was in the winning team of the ECCV 2018 challenge on bias estimation in face analysis (BEFA). Her research interests are in computer vision and face analysis, where she has worked on appearance and dynamic analysis for healthcare and security.



Dr. Naser Damer is a senior researcher at the competence center Smart Living & Biometric Technologies, Fraunhofer IGD. He received his master of science degree in electrical engineering from the Technische Universität Kaiserslautern (2010) and his PhD in computer science from the Technischen Universität Darmstadt (2018). He is a researcher at Fraunhofer IGD since 2011 performing applied research, scientific consulting, and system evalua-

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