

On opportunities and challenges of eye tracking and machine learning for adaptive educational interfaces and classroom research

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Abstract: With the increasing influence of eye tracking, multimedia technology and artificial intelligence in the field of education, a variety of possibilities for the efficient and user-adaptive design of learning environments and for technology-based feedback for didactics are opening up. The basis for this is provided primarily through the application of machine learning methods for the analysis of multimodal, and especially, eye movement data. This talk will focus on opportunities and challenges related to the use of these technologies towards the development of intelligent and adaptive interfaces in learning environments and for education research.

Bio: Enkelejda Kasneci is a Distinguished Professor (“Liesel Beckmann Distinguished Professorship”) for Human-Centered Technologies for Learning at the School of Social Sciences & Technology and Core Member of the Munich Data Science Institute. From December 2019 until July 2022, she was Professor for Media Informatics and Human-Computer Interaction at the Department of Computer Science at the University of Tübingen and served to this department as the Dean of Studies. As a BOSCH scholar, she received her M.Sc. degree in Computer Science from the University of Stuttgart in 2007. In 2013, she received her PhD in Computer Science from the University of Tübingen. For her PhD research, she was awarded the Research Prize of the Federation Südwestmetall in 2014. From 2013 to 2015, she was a postdoctoral researcher and a Margarete-von-Wrangell Fellow at the University of Tübingen. She established her research and teaching activities at the University of Tübingen from 2015 to 2019 as an assistant professor and head of the Perception Engineering Lab.

Her research evolves around Human-Centered Technologies and AI systems that sense and infer the user's cognitive state, the level of task-related expertise, actions, and intentions based on multimodal data and provide information for media and assistive technologies in many activities of everyday life, and especially in the context of learning.

She is member of the Cyber Valley research alliance, of the DFG Excellence Cluster Machine Learning in the Sciences and served from 2016-2021 als Junior Fellow of the German Informatics Society (GI). Besides her engagement as a researcher, she is also dedicated to social and scientific outreach, community building and actively engaged to support young women in STEM and particularly in Computer Science. She serves as academic editor for PlosOne and as a TPC member and reviewer for several major conferences and journals in the areas of intelligent and multimodal Human-Computer Interaction, Human-Centered AI, Human-AI Interaction, Eye-Tracking, and Multimodal Interaction.