Colloquium:
Human Computer Interfaces and Inclusive Technologies - HCIaIT

24. February 2025
Showroom (DHEG136E) | Sandgasse 36, Erdgeschoß

It is a pleasure to invite you to the colloquium for our Professorship in HCIaIT at Graz University of Technology. The public part will be a scientific talk(titles below) including a short CV presentation, relation to the foundation, and a teaching statement followed by a discussion with the audience.

Denis Kalkofen

24. February 2025 | 09:30 | Showroom (DHEG136E)| Sandgasse 36, Erdgeschoß

Title: "Mixed Reality Environments for User Assistance and Education"
Abstract: Traditional approaches to user assistance and education often rely on presenting images and videos. While 2D content is widely available, it commonly lacks interactivity, requires 3D interpretation, and forces users to mentally map the 2D depictions into their own 3D environment. Mixed Reality environments provide an alternative by integrating interactive 3D content into their user's field of view, which enables interactive, immersive 3D experiences and, thus, supports 3D comprehension and engagement. This talk demonstrates the potential of Mixed Reality environments for user assistance and education, and it explores their technical foundation at the intersection of computer graphics, computer vision, and human-computer interaction. Topics include approaches to authoring, visualizing, rendering, and interacting with instructional and educational content in Mixed Reality environments. Attendees will gain insights into how Mixed Reality can redefine how we teach and assist people and which technological challenges must be addressed to succeed.

Elisabeth Lex

24. February 2025 | 10:30 | Showroom (DHEG136E)| Sandgasse 36, Erdgeschoß

Name: "Advancing Inclusion through Human-Centered AI and Assistive Technologies"
Abstract: This talk explores how human-centered AI and assistive technologies can enhance accessibility and participation for diverse user groups. I will present my research on adaptive user modeling, explainable AI, and fairness-aware algorithms, demonstrating how intelligent systems can dynamically adjust to individual needs and foster inclusive digital interactions. Finally, I will discuss future directions for inclusive and ethical AI, emphasizing the need for interdisciplinary collaboration and responsible design.

Victoria Pammer-Schindler

24. February 2025 | 11:30 | Showroom (DHEG136E)| Sandgasse 36, Erdgeschoß

Name: “Learning and Experience in an AI-enabled world”

Abstract: More and more important aspects of the world we live in are mediated by digital, and sometimes by AI-based technology. Sometimes the AI is really simple and stupid, sometimes it is more complex and powerful. This bears risks, but also opportunities. My interest is to investigate, develop and identify design patterns that improve human experience in and of the world, with a focus on knowledge and learning: My vision is that adaptive and AI-based technologies - which power single products but increasingly permeate the whole environment we live in - help us be productive and learn.

In the context of inclusive technologies, a key opportunity of adaptive and AI-enabled technologies is that the vision of adaptive technologies has always been to personalise to the unique user characteristics. With modern AI this has technically become so much easier, and there is a mature body of knowledge around adaptive (learning) technologies available on adaptation of system behaviour.

In the first part of the talk, I will show how conversational agents can be designed to help users structure their thinking: In the first example, the agent helped users to structure their reflection on learning experiences; in the other example, the agent helped users build evidence-based, rational arguments.

In the second part of the talk, I will discuss most recent insights on the un-engaging impact of off-the-shelf genAI on humans in creative and learning tasks; and discuss my ongoing research on how design principles for such agents, always investigating both productivity and learning. In such research, for instance the interaction modality (text-based vs. voice-based), the level of proactivity of the agents, or the role the agents play in the conversation and activity are varied.

In the context of inclusive technologies, such research is highly relevant, for instance in the context of scaffolding reading and comprehension of texts; and to give the possibility to "work with" AI agents in different roles, and to choose the interaction modality depending on the users' strenghts and weaknesses.

ABGESAGT: Johanna Pirker

24. February 2025 | 13:30 | Showroom (DHEG136E)| Sandgasse 36, Erdgeschoß

Barbara Schuppler

24. February 2025 | 14:30 | Showroom (DHEG136E)| Sandgasse 36, Erdgeschoß

Name: “Inclusive communication technologies for learning environments”

Abstract: In our daily communicative interactions, a mix of people from different regional and social back-grounds, native- and non-native language users, speakers with visual-, hearing- or speaking impairments, and young and elderly speakers is omnipresent. If communication is restricted for certain reasons, this has a significant impact on both our physical and mental health. Together with my team, we develop speech processing techniques to support people in speaking and hearing in order to make communication more successful, whether in face-to-face, or in hybrid communication environments. In this talk, I will focus on communicative challenges in learning environments. I will start with sharing my experiences from conducting workshops with five inclusive schools in Graz

during the project “Tune-In”, in which pupils analyzed their speaking and listening behavior, breaking down social prejudices and barriers. This project raised our awareness to the spatial conditions in schools and motivated our research plans 1) on the effect of room-acoustics on teacher’s vocal health and 2) on spatial designs that improve the quality of dyadic communication in a noisy environment (e.g., between support teachers and children with special needs). Finally, I will show results from the currently ongoing development of an assistive communication tool for one specific dysarthric child. In close cooperation with the family, the teachers and the speech therapist, we design a tool tailored to the child’s individual needs, empowering those around the child to provide better support.