

CoMixS

How mixed-display ecosystems can support the collaborative design of digital artifacts – when collocated, remotely and/or over long periods of time.



Inspiration

Collective synchronous work is often crucial when interdisciplinary expertise is needed to solve a problem. Past research has considered how large, shared displays such as tabletops or wall-sized displays (WSD) could support collaborative decision-making and analysis in multidisciplinary teams. Nevertheless, there is little information on how multidisciplinary groups *design digital artifacts together*. For example, to create an application that helps astronomers visualize images captured from the Euclid telescope, developers, astronomers and data analysts need to come together to decide what information to communicate and how, working around several types of collected data and digital resources (documents, photographs, simulations, prototypes, sketches) over weeks or months. Thus, design activities include a large amount of data that needs to be shared and manipulated; may last for long periods of time; and may include shareholders who cannot always attend in person.

Innovation

We propose that design teams can benefit from *interactive display ecosystems*, i.e., a mix of interactive displays, such as interactive wall-sized displays or tabletops, potentially complemented by wearable devices or AR/VR headsets. These ecosystems can combine high-resolution displays that render large quantities of information and can accommodate multiple people (collocated and remote) to allow collaborative work across distributed locations, irrespective of their technological infrastructure. They can also be complemented by distributed technology that is more accessible, for example remote colleagues connected with an augmented reality headset or a desktop computer, depending on their access to technology due to contextual or socio-economical reasons.

Based on their expertise, LIST will lead WP1 and investigate new ways of supporting collaborative design sessions in heterogeneous display ecosystems. LIST will design and develop a new software that will be progressively refined using the insights gained from the different use cases. Furthermore, LIST will contribute to the design and development of new workspace awareness cues and study how they can support mixed-presence collaboration.

Impact

CoMixS contributes to the research fields of human-computer interaction, computer-supported cooperative work, and cyber-physical social systems. Namely, we provide novel solutions to support interaction and collaboration in heterogeneous, distributed systems and across long periods of time, as well as methods and tools for evaluating the quality of collaboration.

The societal impact of CoMixS stems from proposing a new way of collaborating remotely in design activities, a situation where complex or large amounts of data need to be arranged, modified and discussed with a team distributed across several locations. Our solution will reduce the need to physically meet, and help businesses reduce travel expenses while benefiting from rich means of collaboration.

Partenaires

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