

# Improving Surfaces-based Hybrid Agile Team Collaboration

## Starting Position

Agile collaboration has become the dominant paradigm in software development. The collaboration today typically takes place in hybrid work settings, where some team members are co-located while others participate remotely. Today's digital tools enable this mode of work only partially, introducing new challenges rather than fully resolving them. Hybrid collaboration environments are characterized by:

- information asymmetry between on-site and remote participants
- reduced shared situational awareness
- fragmented interaction across multiple tools and devices
- uneven participation and coordination overhead
- change blindness of the team members

These challenges impact team efficiency, decision-making, and overall collaboration

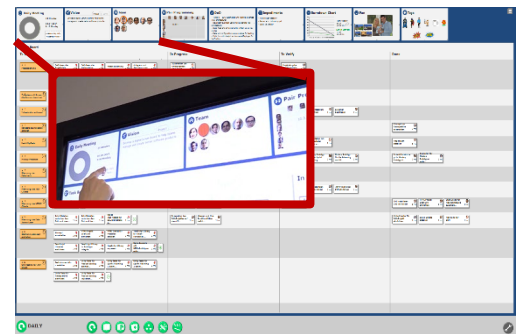
quality. Within an ongoing research initiative, we investigate how agile teams collaborate in such hybrid settings and which factors influence their effectiveness. One outcome of this research work is the agile collaboration platform aWall, designed for large interactive displays supporting both co-located and distributed teams. The system is implemented as a web-based frontend with a REST-based backend and integrates third-party tools such as JIRA.



## Goals

To address these challenges, this project focuses on designing and evaluating new approaches for hybrid agile collaboration. The goal is to improve shared awareness, interaction, and overall team effectiveness by extending the aWall platform with novel concepts and capabilities:

- Overcome hybrid collaboration limitations:  
Design solutions to reduce information asymmetry and improve shared awareness and participation between on-site and remote team members.
- Augment collaboration with intelligent support:  
Integrate data analytics and AI to support reflection, coordination, and decision-making without replacing human interaction.
- Design, implement, and evaluate new interaction concepts:  
Extend the aWall platform with novel interaction and collaboration mechanisms and validate them in realistic agile team settings.



## Used Technology / Required Skills:

Interest and/or good knowledge of web development

Using and working with Agentic AI

Used technologies: Angular, TypeScript, Web Sockets, Web RTC, REST, Python, Web Programming,

## Tasks for the Master student

The interested student can select from the wide range of challenges listed above according to his/her interest. Develop concepts, prototypes, implement solutions and validate them.

**Study type:**  Fulltime  
 Part time 50%

**Project organisation:** Single and/or in a project team possible

**Work place:** Windisch

**Advisor:** Prof. Martin Kropp

References: M. Kropp et al: Enhancing Agile Team Collaboration Through the Use of Large Digital Multi-Touch Cardwalls. In Proceedings of International Conference on Agile Software Development (XP), Cologne, Germany, [Springer LNBIIP](#). 2017