## Bachelor Project: "Creating Immersive Augmented Room Experiences"



Bachelor Project starting in Summer Term 2017, FB 3, University of Bremen

Research Fields: Human-Computer Interaction (HCI), Ubicomp

Project Advisor: Prof. Dr. Johannes Schöning; NN

The goal of this bachelor project is to create immersive, augmented experiences in e.g. living rooms using the RoomAlive toolkit by Microsoft Research. The Bachelor Project aims at taking the RoomAlive Toolkit a step further to enable immersive augmented experiences in whole / multiple rooms. Using the toolkit the students should developed novel interactive experiences in different contexts. The students should define and pick a certain context for their final application(s).

IllumiRoom, presented byMicrosoft Research in 2013, was a project that augments a TV screen with images projected onto the wall and surrounding objects used a single Kinect sensor and projector. The Kinect sensor captures the geometry and colours of the area of the room that surrounds the TV, and the projector displays video around the TV that corresponds to a video source on the TV, such as a video game or movie. This project was further developed and extended and now comes as an open source SDK named RoomAlive Toolkit. The system enables new interactive projection mapping experiences that dynamically adapts content to any room.

The RoomAlive Toolkit is now provided as open source under the MIT License. The code is available at GithHub: <u>https://github.com/Kinect/RoomAliveToolkit</u>. It enables developers to calibrate a network of multiple Kinect sensors and projectors. The toolkit also provides a simple projection mapping exsamples that can be used as a basis to develop new

## immersive augmented reality experiences similar to those of the IllumiRoom and RoomAlive research projects.

Jones, B. R., Benko, H., Ofek, E., & Wilson, A. D. (2013, April). IllumiRoom: peripheral projected illusions for interactive experiences. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 869-878). ACM.

Jones, B., Sodhi, R., Murdock, M., Mehra, R., Benko, H., Wilson, A., ... & Shapira, L. (2014, October). RoomAlive: magical experiences enabled by scalable, adaptive projector-camera units. In Proceedings of the 27th annual ACM symposium on User interface software and technology (pp. 637-644). ACM.