

# IS project (Bachelor/Master): Augmented Reality Supported Enterprise Architecture Management (AR EAM)

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*Developing a software prototype to visualize and assess a multi-layer IT architecture*

## Introduction

Organizations currently face a rapidly changing business environment and, as a result, fast-changing IT requirements. This leads to increasing complexity in the IT landscape through the development of more and sometimes redundant information systems, data silos, and shadow IT. The application of Enterprise Architecture Management (EAM) promises to overcome the resulting challenges by establishing, maintaining and developing an Enterprise Architecture (EA). EA is a time-dependent representation of the structure of an organization that comprises business and IT components and the relationship between them. EAM supports IT managers in decision-making. However, research shows that EA documentation is not used to a sufficient extent due to practitioners perceiving this documentation to be impractical, inflexible, or incomprehensible. One approach to overcome these challenges might lie in the utilization of Augmented Reality (AR) technologies. These technologies may enable a more natural interaction with information, higher manageability of vast amounts of data, as well as simplified data analysis due to involving spatial and visual senses of humans. For the purpose of this project, we assume that virtual and interactive 3D models of EA artifacts increase the quality of decision-making, which, in turn, increases the effectiveness of EAM.

## Contribution and tasks

This project aims at developing a software prototype to visualize an exemplary EA with AR technology. Following a city metaphor, the outcome should be a virtualized 3D map that represents applications as buildings, which are connected to other applications through streets and their underlying infrastructure through pipes<sup>1</sup>. Buildings, streets, and pipes can change their form, size, and appearance based on criteria like number of users, risk of IT-failure, business

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<sup>1</sup> See [https://youtu.be/KilkHpM\\_-b0](https://youtu.be/KilkHpM_-b0) for an example of an AR city map

# SITM

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importance, age, or conformity to standards. The resulting EA visualization should be accessed via Microsoft HoloLens and controllable with gestures by one or many users. HoloLens devices will be provided during the project.

Interested students will create a detailed specification and develop a virtual and interactive EA city map in close collaboration with researchers. Therefore, students should have a good understanding of software development projects and be able to develop software in C# (or quickly teach themselves C#). Further, knowledge about the game engine Unity would be useful. However, some students might also focus on requirements engineering and other activities. As this is a novel approach, creativity and self-reliance are crucial team member requirements. Students will be assigned to work streams depending on their degree program, the number of participants, and individual skills.

The project offers a unique opportunity to experience a real-world, on-going research project. Further, it is a great way to deepen your skills in software development, theoretical thinking, business understanding, and rapid prototyping, which are all highly valuable for your CV.

### **Evaluation**

- 1) 50% of final grade: Research/project report (Word, approx. 20–50 pages)
- 2) 50% of final grade: Final presentation of the project results (PPT plus verbal delivery)

The evaluation considers whether students are in their bachelor or master studies.

### **Application**

Interested bachelor or master students (or groups of students) can apply for this project by submitting a current grade transcript and a brief motivational letter before 2017-10-31 23:59. Please use the online application form: <http://udue.de/sitmproject>