

Are you looking for a paid PhD in the field of Recommender Systems for Data Driven Immersive Analytics? You have skills and/or interest in topics like Sequential Recommender Systems and Learning Path Recommendations, and have high interest in research and development? If so, we are looking forward to meeting you!

As part of the DDIA Comet module we offer 1 PhD positions in the Area "Social Computing":

## PHD in Sequential Recommender Systems

(38.5 h/w) in Graz, 4 years (2022 – 2025)

### Context:

Digitalization efforts have led to massive sensor infrastructures embedded in the fabric of objects, processes and space. The growing volume of data increasingly demands the ability to access data anytime and anywhere. In industrial settings, complex cyber-physical systems with networks of sensors and computational cores monitor and control real-world entities. Their digital footprint is collected in so-called digital twins. However, current interaction and analytics methods for digital twins cannot relate to the physical world context, and remote users have only a restricted sense of space. We will apply immersive analytics, using virtual reality and augmented reality to provide interactive analytics in industrial applications regardless of location. Based on the digital twins, we will develop techniques and methods in order to create a unified coherent experience of data and analytics, which is anchored in the real world for both on-site and remote participants.

### Tasks:

This PhD topic investigates the realization of sequential recommender systems for immersive analytics. Thus, based on the digital traces of interactions recorded in the immersive environment, the PhD student will study and model temporal and contextual dependencies between these interactions in order to develop novel algorithms for next-interaction recommendations and for recommendations of interaction-sequences. For this, state-of-the-art methods from the area of sequential recommender systems should be combined with concepts of learning path recommendations. Additionally, principles of trustworthy AI such as fairness, biases and transparency should be investigated for this task.

The dissertation work will be carried out in the Area Social Computing led by Dr. Dominik Kowald and Emanuel Lacic, MSc., and is linked to existing research in this group such as research on biases carried out by Dr. Simone Kopeinik. The dissertation will be supervised at the Doctoral School of Computer Science at the Graz University of Technology by Univ.-Prof. Dr. techn. MSc Eduardo Veas.

### Qualifications:

- Master's degree in Computer Science, Information and Computer Engineering, Mathematics, or similar
- Good knowledge of machine learning; knowledge in recommender systems is a plus
- Experience and practical proficiency with programming languages and tools (e.g., Python, Git, etc.)
- Analytical thinking as well as independent and structured work
- Excellent communication and teamwork skills
- Very good knowledge of English, both spoken and written

### We offer:

- A dynamic work environment with highly qualified and motivated colleagues
- Comprehensive support for your dissertation project at Graz University of Technology
- Close collaboration with other research groups and industry
- Opportunities for professional and personal development

The gross salary for this full-time job (38,5 h/w) is 2,971,50,- EUR per month (14 times per year). Higher compensation is possible depending on the experience and qualifications.

Please submit your application with a motivational statement, a detailed CV and a current transcript of records at [career@know-center.at](mailto:career@know-center.at).

