

The Business Informatics Group, together with the Faculty of Informatics of the TU Wien, the Austrian Computer Society, and the Center for Computer Science invites to the talk

Quantum Computing: A Brief Introduction

Prof. Frank Leymann, Dr. Johanna Barzen

University of Stuttgart, Institute of Architecture of Application Systems

When? October 25, 2019, 2 p.m.

**Where? Technische Universität Wien
1040 Wien, Favoritenstraße 9-11/EG
seminar room Zemanek**



Abstract

Quantum computers are becoming reality. But which potential is hidden in this new technology and where do we stand today? We start with a short introduction to the underlying concepts of quantum physics, such as uncertainty and superposition, and then introduce qubits, the role of measurements, and the basic structure of a quantum algorithm. How does a quantum register look like and which role does entanglement play? What are the operators for manipulating quantum registers and what is decoherence of qubits? Answers to such basic questions will be presented and discussed in the talk. Finally, the possible medium-term use of quantum computers will be presented and an outlook on a use case from the digital humanities will be given.

Bios

Frank Leymann is a full professor of computer science at University of Stuttgart, Germany. His research interests include service-oriented architectures and associated middleware, workflow- and business process management, cloud computing, patterns, and quantum computing. Frank is co-author of more than 450 peer-reviewed papers, about 70 patents, and several industry standards. He is an elected member of the Academy of Europe.

Johanna Barzen studied media science, musicology and phonetics at the University of Cologne. Next to this, she studied costume design at the ifs (international film school Cologne) and worked in several film productions in the costume department in different roles. Currently she is Postdoc and research staff member at the Institute of Architecture of Application Systems (IAAS) at the University Stuttgart performing research on Digital Humanities, Pattern Languages and Quantum Computing.

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