

GROUP FOR THEORETICAL COMPUTER SCIENCE AND IT-SECURITY

Prof. Dr. Matthias Krause
Chair of Theoretical Computer Science

Prof. Dr. Frederik Armknecht
Chair of Practical Computer Science IV



Who We Are

Prof. Dr. Matthias Krause
(Theoretical Computer Science)

Prof. Dr. Frederik Armknecht
(Practical Computer Science IV)

Secretariat

Karin Teynor

Gabi Atkinson

Researchers

Matthias Hamann

Youzhe Heng

Alexander Moch

Christian Müller

Jochen Schäfer

Jasmin Zalonis

Affiliated PhD Students

Sebastian Plotz (Hochschule Stralsund)

System Administrator

Walter Müller

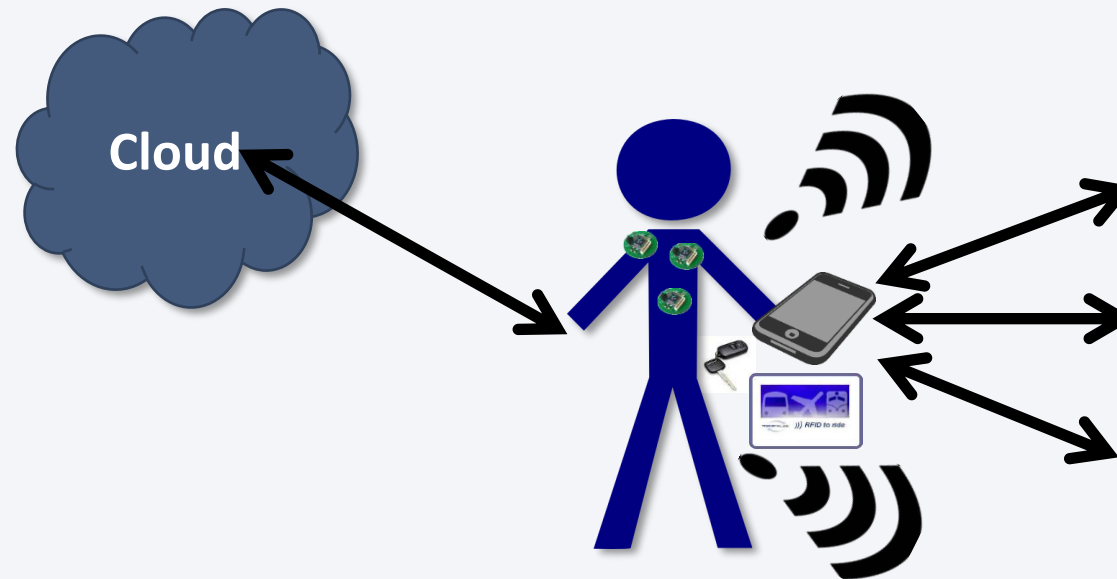
Our Research Interests

Prof. Dr. Matthias Krause <i>(Theoretical Computer Science)</i>	Prof. Dr. Frederik Armknecht <i>(Practical Computer Science)</i>
Complexity Theory Algorithmics	Cryptography Security and Privacy Internet of Things Cloud Computing Bitcoin / Blockchains
Focus more on theory	Focus more on practice

Data Security and Privacy

Data Outsourcing

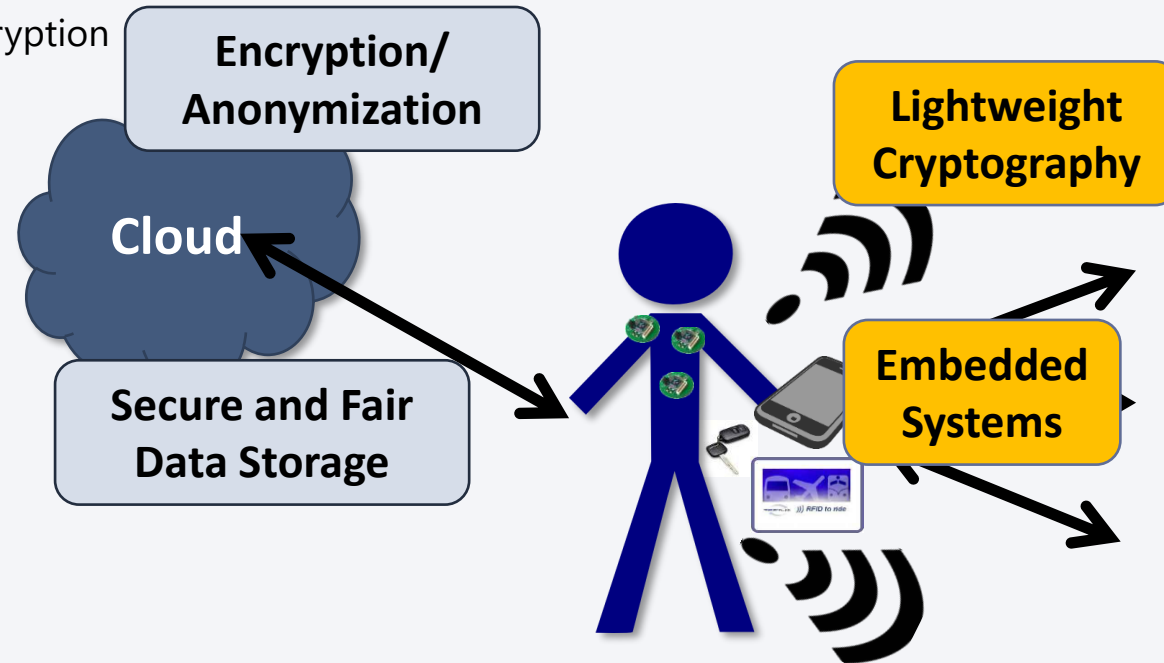
Data Leakage



Some Topics

Data Outsourcing

- Homomorphic encryption
- Privacy-preserving record linkage
- Reliable storage
- Transparent deduplication



Data Leakage

- New construction principles
- Concrete hardware implementations
- Privacy analysis in smart homes
- Remote attestation

Blockchains

- Incentivize blockchain duplication
- Privacy analysis

Teaching

Prof. Dr. Matthias Krause
(Theoretical Computer Science)

Prof. Dr. Frederik Armknecht
(Practical Computer Science)

Lectures

Algorithmics (FSS)

Cryptography (FSS)

Theoretische Informatik

Formale Grundlagen der Informatik

Algorithmen und Datenstrukturen

Praktische Informatik I

Cryptography II (HWS)

Selected Topics in IT-Security

Data Security & Privacy (FSS)

Seminars

Bachelor (HWS)

Master (FSS)

Bachelor (FSS)

Master (HWS)

Team Projects

**Current: Bitcoin forensics: Tracing darknet
drug trades on the blockchain**

Master Thesis

- Various topics possible
- Can range from theoretical to practical, technical topics
- Examples
 - Zero-Knowledge Proofs
 - CAPTCHAs
 - Threat Analysis Driver Assistance Systems
 - Smart Contracts
- Collaboration with companies possible and welcome
 - SAP, BMW, BASF, NEC, Huawei, ERNW, ...
- Also open for suggestions – simply contact us

<https://www.wim.uni-mannheim.de/this/>