

# Maurice Bailleu

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## Research Interests

My research interests lie in the broad area of computer systems, including distributed, dependable systems, operating systems, trusted computing, storage systems and database systems.

## Experience

- since 09/23 **Senior Researcher, Huawei R&D**, Edinburgh, UK  
Redesigning database operator for modern systems.  
Researching and designing efficient operator implementation for databases, with a focus on hash join and hash aggregation functions.
- 05/22 - 08/22 **Research Intern, Microsoft Research**, Cambridge, UK  
Rollback protected confidential writable storage.  
Researching and designing a block level storage system which provides rollback protection for confidential containers.
- 10/15 - 03/16 **Research Associate, HP Labs**, Palo Alto, USA  
Persistent Capabilities for L4/Fiasco.OC  
Researching the use of kernel capabilities for NVM. Also exploring the possibilities to use capabilities over multiple nodes to mediate access to shared resources.
- 04/14 - 12/14 **Research Assistant, TU Dresden**, Germany  
Implementing and evaluating different checksum methods for IPC in Fiasco.OC and L4Re.

## Education

- 07/23 **PhD, The University of Edinburgh**, UK  
Specialization in system architecture, especially trusted cloud storage  
PhD thesis: Secure Storage Systems for Untrusted Cloud Environments  
Advisor: Prof. Dr.-Ing. Pramod Bhatotia
- 09/17 **Diplom in Computer Science, TU Dresden**, Germany  
Specialization in operating systems  
Diplom thesis: Byte-granular memory mapping with CHERI and L4Re.  
Advisor: Prof. Dr. rer. nat. Hermann Härtig

## Teaching

- 03/21 - 07/24 **Teaching Assistant, TU Munich**, Germany  
Advanced System Programming in C/Rust; Cloud Lab
- 11/18 - 12/19 **Teaching Assistant, The University of Edinburgh**, UK  
Extreme Computing

## Publications

- 10/24 **Toast: A Heterogeneous Memory Management System**, PACT'24, Long Beach, USA  
Maurice Bailleu, Dimitrios Stavrakakis, Rodrigo Rocha, Soham Chakraborty, Deepak Garg, Pramod Bhatotia  
Code available: <https://github.com/TUM-DSE/toast>

- 06/24 **Anchor: A Library for Building Secure Persistent Memory Systems**, *SIGMOD'24*, Santiago, Chile  
Dimitris Stavrakakis, Dimitra Giantsidi, Maurice Bailleu, Philip Sändig, Shady Issa and Pramod Bhatotia  
Code available: <https://github.com/dimstav23/Anchor>
- 06/22 **Treaty: Secure Distributed Transactions**, *IEEE/IFIP DSN'22*, Baltimore, USA  
Dimitra Giantsidi, Maurice Bailleu, Natacha Crooks and Pramod Bhatotia  
Code available: <https://github.com/TUM-DSE/Treaty>
- 07/21 **Avocado: A Secure In-Memory Distributed Storage System**, *USENIX ATC'21*, Online Event/Santa Clara, USA  
Maurice Bailleu, Dimitra Giantsidi, Vasilis Gavrielatos, Do Le Quoc, Vijay Nagarajan and Pramod Bhatotia  
Code available: <https://github.com/mbailleu/avocado>
- 06/19 **TEE-Perf: A Profiler for Trusted Execution Environments**, *IEEE/IFIP DSN'19*, Portland, USA  
Maurice Bailleu, Donald Dragoti, Pramod Bhatotia and Christof Fetzer  
Code available: <https://github.com/mbailleu/tee-perf>
- 02/19 **SPEICHER: Securing LSM-based Key-Value Stores using Shielded Execution**, *USENIX FAST'19*, Boston, USA  
Maurice Bailleu, Jörg Thalheim, Pramod Bhatotia, Christof Fetzer, Michio Honda and Kapil Vaswani
- 11/17 **Interoperable capabilities**, *Patent: US20170329526A1*  
Reto Achermann, Maurice Bailleu, Dejan S. Milojevic and Gabriel Parmer

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## Talks

- 10/24 **ACM PACT'24**, *Long Beach*, USA, Conference Talk  
Toast: Heterogeneous Memory Management
- 12/22 **LSDS at Imperial College**, *London*, UK, Seminar Talk  
Secure Storage for the Cloud
- 07/21 **USENIX ATC'21**, *Online Event/Santa Clara*, USA, Conference Talk  
Avocado: A Secure In-Memory Distributed Storage System
- 12/19 **Huawei Workshop**, *Shanghai*, China, Poster session
- 06/19 **Intel Labs**, *Hillsboro*, USA, Project Presentation  
SPEICHER: Securing LSM-based Key-Value Stores using Shielded Execution
- 06/19 **IEEE/IFIP DSN'19**, *Portland*, USA, Conference Talk  
TEE-Perf: A Profiler for Trusted Execution Environment
- 02/19 **USENIX FAST'19**, *Boston*, USA, Conference Talk  
SPEICHER: Securing LSM-based Key-Value Stores using Shielded Execution

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## Awards

- 06/22 **IEEE/IFIP DSN'22 Best paper finalist**
- 10/21 **2021-2022 Microsoft Research PhD Fellowship**
- 06/19 **Travel grant for DSN'19**