Maurice Bailleu

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
Redesgining database operator for modern systems.
Researching and designing efficent 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. Additionally, exploring the possibility to lift the protection from the block storage layer into a file system layer for increased performance.

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, in particular using L4/Fiasco.OC capabilities to manage NVM. Also exploring the possiblities to use capabilities over multiple nodes to mediate access to shared resources.

04/14 - 12/14 **Research Assistant**, *TU Dresden*, Germany
Implementing, testing 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

03/22 - today **Teaching Assistant**, *TU Munich*, Germany
Cloud Lab

03/21 - today **Teaching Assistant**, *TU Munich*, Germany
Advanced System Programming in C/Rust

11/18 - 12/19 **Teaching Assistant**, *The University of Edinburgh*, UK
Extreme Computing

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Publications

09/22 **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

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. Milojicic and Gabriel Parmer

Talks

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

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**

References

Prof. Dr.-Ing. Pramod Bhatotia
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University of Edinburgh
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