Patrick Sabanic

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Homepage: https://sabanic-p.github.io/
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Education

Ph.D. in Computer Science (Mai 2023 - Present)
Technical University of Munich, Germany
Advisor: Prof. Dr. Pramod Bhatotia

MSc in Informatics (Oct 2020 - Mar 2023)
Technical University of Munich, Germany
Thesis: Supporting Unikernel-based Microservices at the Edge
Advisor: Dr. Nitinder Mohan, Giovanni Bartolomeo

BSc BSc Informatics (Oct 2016 - Oct 2020)
Technical University of Munich, Germany

Employment

Technical University of Munich, Munich, Germany May 2023 - Present
Research Staff

Ph.D. Research

Advisor: Prof. Dr. Pramod Bhatotia

Topics:

Confidential Serverless Computing
Serverless computing offers compelling advantages, but securely managing sensitive data is a challenge. With this project, we aim to combine Confidential Virtual Machines (CVMs) with serverless computing to offer confidential serverless cloud computing. In particular, we designed a trust hierarchy with the help of VMPL levels provided by AMD SEV-SNP.

Accelerated Confidential Inference
With the proliferation of compute-intensive LLM-based applications, managing sensitive data becomes more important as more such confidential data is being processed by LLMs in the cloud. With this project, we will offer an inference solution that keeps user data confidential by utilizing confidential GPUs such as the Nvidia H100 and CVMs with VMPL to allow for a hierarchical structure in the CVM.

Investigation of Library OSes for ARM CCA
With the new ARM CCA (Confidential Compute Architecture) extension, the possibility arises to run

Confidential Virtual Machines on edge devices, allowing for security-sensitive tasks. This topic investigates the possibility of using Unikernels to minimize the trusted computing base for confidential applications.

Conference publications

Wallet: Confidential Serverless Computing
Patrick Sabanic, Masanori Misono, Teofil Bodea, Julian Pritzi, Michael Hackl, Dimitrios Stavrakakis, Pramod Bhatotia
NSDI '26 (To Appear)

Supporting Hybrid Virtualization Orchestration for Edge Computing
Giovanni Bartolomeo, Patrick Sabanic, Nitinder Mohan, Jörg Ott
EdgeSys '25

Academic professional experience

BSc/MSc thesis advisor: Supervised 2 MSc at TU Munich:

CloakVM: A Runtime System for Confidential Serverless Functions
Michael Hackl, Master's Thesis.

Evaluating the Performance Impact of Privilege Levels of Confidential Virtual Machines
Alexander Schindler, Master's Thesis.

Reviewer: SoCC '23, ASPLOS '24, CCS '24, SOSP '24, EuroSys '25, EuroSys '26

References

Prof. Dr. Pramod Bhatotia
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Prof. Jörg Ott
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