

# Antoine Kaufmann — CV

Max Planck Institute for Software Systems  
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## EDUCATION

- 2018 **Ph.D. in Computer Science and Engineering**  
University of Washington  
Advisors: Thomas Anderson, Simon Peter (UT Austin), Arvind Krishnamurthy  
Thesis: Efficient, Secure, and Flexible High Speed Packet Processing for Data Centers
- 2014 **M.Sc. ETH in Computer Science**  
ETH Zurich  
Advisor: Timothy Roscoe  
Thesis: Efficiently executing the Dragonet network stack
- 2012 **B.Sc. ETH in Computer Science**  
ETH Zurich  
Advisor: Timothy Roscoe  
Thesis: Low-latency OS protocol stack analysis

## PROFESSIONAL EXPERIENCE

- 2021 – present **Max Planck Institute for Software Systems, Germany**  
Tenure-Track Faculty
- 2022 – present **Technical University Munich, Germany**  
Adjunct Faculty at the Chair of Decentralized Systems Engineering
- 2018 – 2021 **Max Planck Institute for Software Systems, Germany**  
Research Group Leader: Operating Systems Group
- 2015 **Intel Labs, Hillsboro OR, USA**  
Research Intern Systems and Architecture
- 2006 – 2014 **HILOTEC E&C AG, Switzerland**  
Software Developer
- 2012 **ITmovement AG, Switzerland**  
Corporate Training Instructor  
(Network Background for VoIP technicians)

## PUBLICATIONS

- \* Artem Ageev, **Antoine Kaufmann**. Kugelblitz: Streamlining Reconfigurable Packet Processing Pipeline Design and Evaluation. *Under submission (pre-print arXiv:2305.08435)*.
- \* Vaastav Anand, Deepak Garg, **Antoine Kaufmann**, Jonathan Mace. Millennial: A Toolchain for Highly-Reconfigurable Microservice Applications. *Under submission*.
- \* Yihan Yang, Zhuobin Huang, **Antoine Kaufmann**, Jialin Li. Protected Data Plane OS Using Memory Protection Keys and Lightweight Activation. *Under submission (pre-print arXiv:2302.14417)*.
- 2023 Hejing Li, **Antoine Kaufmann**. SplitSim: Scalable and Parallel Full Data Center System Simulations. In *5th Young Architect Workshop (YArch)*, 2023.
- 2022 Bin Gao, Hejing Li, Jialin Li, **Antoine Kaufmann**. Improving Disaggregated System Evaluation with Modular End-to-End Simulation. In *3rd Workshop On Resource Disaggregation and Serverless Computing (WORDS)*, 2022.
- 2022 Hejing Li, Jialin Li, **Antoine Kaufmann**. SimBricks: End-to-End Network System Evaluation with Modular Simulation. In *2022 ACM SIGCOMM 2022 Conference (SIGCOMM)*, 2022.

- 2022 Rajath Shashidhara, Timothy Stamler, **Antoine Kaufmann**, Simon Peter. FlexTOE: Flexible TCP Offload with Fine-Grained Parallelism. In *19th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2022.
- 2021 Artem Ageev, Mehrshad Lotfi Foroushani, **Antoine Kaufmann**. Exploring Domain-Specific Architectures for Network Protocol Processing. In *2021 Cloud@MICRO Workshop (Cloud@MICRO)*, 2021.
- 2020 Reza Karimi, Arpan Gujarati, Safya Alzayat, Wei Hao, **Antoine Kaufmann**, Ymir Vigfusson, Jonathan Mace. Serving DNNs like Clockwork: Performance Predictability from the Bottom Up. In *14th Symposium on Operating Systems Design and Implementation (OSDI)*, 2020. **Distinguished Artifact Award.**
- 2019 **Antoine Kaufmann**, Tim Stamler, Simon Peter, Naveen Kr. Sharma, Thomas Anderson, and Arvind Krishnamurthy. TCP Acceleration as an OS Service. In *14th EuroSys Conference (EuroSys)*, 2019.
- 2019 Amit Samanta, Suhas Shrinivasan, **Antoine Kaufmann**, Jonathan Mace. No DNN Left Behind: Improving Inference in the Cloud with Multi-Tenancy. In *(arXiv:1901.06887)*, 2019.
- 2018 Phitchaya Mangpo Phothilimthana, Ming Liu, **Antoine Kaufmann**, Simon Peter, Rastislav Bodik, and Thomas Anderson. Floem: A Programming System for NIC-Accelerated Network Applications. In *13th Symposium on Operating Systems Design and Implementation (OSDI)*, 2018.
- 2017 Naveen Kr. Sharma, **Antoine Kaufmann**, Thomas Anderson, Changhoon Kim, Arvind Krishnamurthy, Jacob Nelson, and Simon Peter. Evaluating the Power of Flexible Packet Processing for Network Resource Allocation. In *14th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2017.
- 2016 **Antoine Kaufmann**, Simon Peter, Naveen Kr. Sharma, Thomas Anderson, and Arvind Krishnamurthy. High performance packet processing with FlexNIC. In *21st International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2016.
- 2016 James Bornholt, **Antoine Kaufmann**, Jialin Li, Arvind Krishnamurthy, Emina Torlak, and Xi Wang. Specifying and checking file system crash-consistency models. In *21st International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2016.
- 2015 Kornilios Kourtis, Pravin Shinde, **Antoine Kaufmann**, and Timothy Roscoe. Intelligent NIC Queue Management in the Dragonet Network Stack. In *3rd Conference of Timely Results in Operating Systems (TRIOS)*, 2015.
- 2015 **Antoine Kaufmann**, Simon Peter, Thomas Anderson, and Arvind Krishnamurthy. FlexNIC: Re-thinking Network DMA. In *15th Workshop on Hot Topics in Operating Systems (HOTOS)*, 2015.
- 2013 Pravin Shinde, **Antoine Kaufmann**, Kornilios Kourtis, and Timothy Roscoe. Modeling NICs with Unicorn. In *7th Workshop on Programming Languages and Operating Systems (PLOS)*, 2013.
- 2013 Pravin Shinde, **Antoine Kaufmann**, Timothy Roscoe, and Stefan Kaestle. We need to talk about NICs. In *14th Workshop on Hot Topics in Operating Systems (HOTOS)*, 2013.

## HONORS & AWARDS

- 2020 OSDI Distinguished Artifact Award
- 2020 Google Cloud Platform Research Credits, \$5K
- 2020 Finalist Facebook ML Systems Research Award (Co-PI)
- 2015 Eurosys Best Poster Award
- 2014 Gary Kildall Endowed Fellowship

## TEACHING EXPERIENCE

- Operating Systems (graduate)**, MPI-SWS, Saarland University
- 2021 – 2022 Instructor

**Operating Systems (graduate)**, MPI-SWS, Saarland University  
 2019 – 2020 Instructor  
**Computer Operating Systems (graduate)**, University of Washington  
 2017 Teaching Assistant, Guest Lecturer  
**Introduction to Operating Systems**, University of Washington  
 2016 Teaching Assistant, Tutor  
**The Hardware/Software Interface**, University of Washington  
 2016 – 2017 Tutor  
**Systems Programming and Computer Architecture**, ETH Zurich  
 2012 Teaching Assistant  
**Operating Systems and Networks**, ETH Zurich  
 2012 Teaching Assistant

#### **SUPERVISED STUDENTS**

2020 – present **Hejing Li**, Doctoral Student, research engineer, intern  
 2019 – present **Artem Ageev**, Doctoral Student  
 2022 – present **Matheus Stolet**, Doctoral Student  
 2022 – present **Vaastav Anand**, Doctoral Student (co-advised)  
 2023 – present **Tejas S. Harith**, Doctoral Student  
 2022 – present **Jonas Kaufmann**, master research project  
 2022 – present **Jakob G3rgen**, master thesis  
 2023 – present **Marvin Meiers**, master thesis  
 2023 – present **Liam Arzola**, intern  
 2019 – 2023 **Mehrshad Lotfi**, Doctoral Student (left with masters)  
 2022 **Yuchen Qian**, intern, master thesis  
 2018 – 2021 **Ahmed Nematallah**, master research project, thesis  
 2020 **Dominik Luche**, master thesis  
 2020 **Florian Bauckholt**, bachelor thesis  
 2020 **Emiliano Luci**, intern  
 2019 **Guruprasad Hedge**, master thesis  
 2019 **Madhav Tummala**, intern  
 2017 **Paul Yau**, undergrad & master’s project (University of Washington)

#### **SERVICE**

2024 **Program Committees: NSDI’24 (spring)**  
 2023 **SOSP’23 general co-chair**  
 2023 **Program Committees: EuroSys’23, HotNets’23**  
 2022 **Program Committees: ASPLOS’22, PerfNA’22**  
 2021 **SOSP’21 general co-chair treasurer**  
 2021 **Program Committees: EuroSys’21, EuroDW’21, VEE’21, PLOS’21**  
 2020 **Program Committees: SPMA’20**  
 2020 **CS @ Max Planck admissions committee**  
 2020 **CMMRS summer school poster session organization**  
 2019 **Program Committees: SFMA’19, EdgeSys’19**  
 2019 **CMMRS summer school poster session organization**  
 2015 **UW Graduate Admissions Committee**

## LANGUAGES

**German:** native

**English:** fluent

**French:** intermediate (reading), basic (writing, speaking)

## REFERENCES

**Thomas Anderson**

tom@cs.washington.edu

Professor

University of Washington

**Arvind Krishnamurthy**

arvind@cs.washington.edu

Professor

University of Washington

**Timothy Roscoe**

troscoe@inf.ethz.ch

Professor

ETH Zurich

**Peter Druschel**

druschel@mpi-sws.org

Founding Director

Max Planck Institute for Software Systems

**Simon Peter**

simon@cs.utexas.edu

Assistant Professor

The University of Texas at Austin