MATHEUS STOLET

stolet.github.io
mstolet@mpi-sws.org

SUMMARY

Graduating Ph.D. candidate in Computer Science specialising in high-performance datacenter networking, with hands-on experience in DPDK, eBPF, and kernel-bypass. Designed cloud network stacks that improve throughput, CPU efficiency, and multi-tenant tail latency isolation. Built a TCP stack with full socket and protocol-level compatibility. Available from November 2026.

SELECTED RESEARCH

Behemoth, *rethinking polling efficiency in large multicores*
- Characterised package-level power and thermal limits on modern multicore servers
- Developed a power-budget model showing that efficient polling can reduce inefficiency of idle cores

Chamelio, *tenant-defined cloud network stack for VMs*
- Built programmable cloud network stack with DPDK and eBPF
- Implemented complete socket and protocol compatible TCP stack
- Reduced overheads of eBPF programmability from 23.9% to 3.8%
- Achieved 9.2M requests/s for TCP and 14 μs unloaded p99 RTT

Virtuoso, *time protected shared network datapath*
- Built mechanism that reduces performance interference between tenants in shared datapath
- Decreased tail latency interference by 7.8×

EMPLOYMENT

Research Intern, Microsoft Research Redmond *Jun. 2024 - Sep. 2024*
- Built interposition library that enables transparent POSIX-compatible kernel-bypass networking
- Traced memory allocation events that were used by a zero-copy library

Research Assistant, BC Cancer Research Centre *May 2019 - Aug. 2019*
- Built a distributed analytics platform for executing queries across hospitals and research centres
- Applied differential privacy techniques to reduce information leakage from distributed queries

Software Engineering Intern, Thrive Health *May 2018 - Aug. 2018*
- Built a software module to support pre-surgical patient triage
- Developed frontend features for a web application using React and Redux
- Built backend infrastructure using AWS Lambda and SQS to scale media transcoding workflows

EDUCATION

PhD, Computer Science *Oct. 2021 - Oct. 2026*
Max Planck Institute for Software Systems
Thesis: Efficient, Isolated, and Flexible Network Datapaths
Advisor: Dr. Antoine Kaufmann

MSc, Computer Science *Sep. 2019 - Aug. 2021*
University of British Columbia
Thesis: Large Scale Federated Analytics and Differential Privacy Budget Preservation
Advisors: Dr. Ivan Beschastnikh and Dr. Aline Talhouk

BA, Computer Science - Minor, Philosophy *Sep. 2015 - May 2019*
University of British Columbia

SKILLS

Programming Languages
C, Python, Go, and JavaScript

Technical Skills
DPDK, eBPF, TCP, UDP, kernel bypass, Linux network stack, OvS, and differential privacy

Languages
English (fluent) and Portuguese (native)

AWARDS

1st Place ACM Student Research Competition, SOSP *2023*
International Student Tuition Award, University of British Columbia *2019*
Dean's List, University of British Columbia *2016*
Trek Excellence Scholarship, University of British Columbia *2016*
Faculty of Arts International Student Schoalrship, University of British Columbia *2016*

PAPERS

Matheus Stolet, Simon Peter, Antoine Kaufmann. Rethinking Polling Efficiency in Service Core Network Stacks. *Under Review* (pre-print arXiv:2607.16408).

Matheus Stolet, Simon Peter, Antoine Kaufmann. Chamelio: A Fast Shared Cloud Network Stack for Isolated Tenant-Defined Protocols. *Under Review* (pre-print arXiv:2604.22603).

Matheus Stolet, Liam Arzola, Simon Peter, Antoine Kaufmann. Tail Contagion: Sub-microsecond Time Protection in Shared Software Network Datapaths. *Under Review* (pre-print arXiv:2309.14016).

Vaastav Anand, **Matheus Stolet**, Jonathan Mace, Antoine Kaufmann. Generating Representative Macrobenchmark Microservice Systems from Distributed Traces with Palette. In *APSys* 2025

Vaastav Anand, Zhiqiang Xie, **Matheus Stolet**, Roberta De Viti, Thomas Davidson, Reyhaneh Karimipour, Safya Alzayat, Jonathan Mace. The Odd One Out: Energy is not like Other Metrics. In *HotCarbon* 2022

Vaastav Anand, **Matheus Stolet**, Thomas Davidson, Ivan Beschastnikh, Tamara Munzner, and Jonathan Mace. Aggregate-driven trace visualizations for performance debugging. *arXiv:2010.13681* 2020