

Vaastav Anand

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Research Interests	I like building, testing, breaking, and fixing systems. My primary research interests lie at the heart of cloud computing, focused on building more performant cloud systems and diagnosing performance issues in such systems. I am also interested in the performance reliability of Post-Moore heterogeneous hardware systems in the context of cloud systems.	
Education	PhD, Computer Science	2020-current
	Max Planck Institute for Software-Systems (MPI-SWS), Saarbruecken, Germany	
	MSc, Computer Science	2018-2020
	University of British Colombia, Vancouver, Canada	
	Thesis: Dara the explorer : coverage based exploration for model checking of distributed systems in Go	
Selected Research Projects	BSc, Computer Science	2013-2018
	University of British Colombia, Vancouver, Canada	
	Cerulean	2024-current
	Cerulean is a human-in-the-loop LLM-based tool for generating microservice systems from high level user requirements.	
	Iridescent	2022-current
	Iridescent is a library that provides developers a systematic way for developers to support generalization while also taking advantage of specialization optimization opportunities arising from the workload and the deployment environment.	
	Blueprint (fka Millenial)	2020-current
	A framework for developing flexible and modular microservice applications. Provides a programming abstraction for writing microservice applications that makes it easy to later change aspects related to the system's scaffolding and topology.	
Publications	Papers	
	Generating representative macrobenchmark microservice systems from distributed traces with Palette. Vaastav Anand , Matheus Stolet, Jonathan Mace, Antoine Kaufmann. Under Review.	
	Automated Service Design with Cerulean (Project Showcase). Vaastav Anand , Alok Kumbhare, Celine Irvine, Chetan Bansal, Gagan Somashekar, Jonathan Mace, Pedro Las-Casas, Rodrigo Fonseca. 6th International Workshop on Cloud Intelligence/AIOps Workshop (co-located with ICSE), AIOps 2025 .	
	Towards Using LLMs for Distributed Trace Comparison (Abstract). Vaastav Anand , Pedro Las-Casas, Rodrigo Fonseca, Antoine Kaufmann. 6th International Workshop on Cloud Intelligence/AIOps Workshop (co-located with ICSE), AIOps 2025 .	
	Blueprint: A Toolchain for Highly Reconfigurable Microservice Applications.	

Vaastav Anand, Deepak Garg, Antoine Kaufmann, Jonathan Mace. In Symposium on Operating Systems Principles, **SOSP 2023**.

The Benefit of Hindsight: Tracing Edge Cases in Distributed Systems.

Lei Zhang, Zhiqiang Xie, **Vaastav Anand**, Ymir Vigfusson, Jonathan Mace. In Networked Systems Design and Implementation, **NSDI 2023**.

The Odd One Out: Energy is not like Other Metrics.

Vaastav Anand, Zhiqiang Xie, Matheus Stolet, Roberta De Viti, Thomas Davidson, Reyhaneh Karimipour, Safya Alzayat, Jonathan Mace. In **HotCarbon 2022**.

Smooth Kronecker: Solving the Combing Problem in Kronecker Graphs.

Vaastav Anand*, Puneet Mehrotra*, Daniel Margo*, Margo Seltzer. In Joint Workshop on Graph Data Management Experiences and Systems and Network Data Analytics, **GRADES-NDA 2020**.

Sifter: Scalable Sampling for Distributed Traces, without Feature Engineering.

Pedro Las-Casas, Giorgi Papakerashvili, **Vaastav Anand**, Jonathan Mace. In Symposium on Cloud Computing, **SoCC 2019**.

Pre-Prints

Chatting with Logs: An exploratory study on Finetuning LLMs for LogQL.

Vishwanath Seshagiri, Siddharth Balyan, **Vaastav Anand**, Kaustubh Dhole, Ishan Sharma, Avani Wildani, José Cambroner, Andreas Züfle. In **arXiv 2025**, <https://arxiv.org/pdf/2412.03612>.

Columbo: Low Level End-to-End System Traces through Modular Full-System Simulation.

Jakob Görgen, **Vaastav Anand**, Hejing Li, Jialin Li, and Antoine Kaufmann. In **arXiv 2024**, <https://arxiv.org/pdf/2408.05251>.

SoK: The Faults in our Graph Benchmarks.

Puneet Mehrotra*, **Vaastav Anand***, Daniel Margo, Milad Rezaei Hajidehi, and Margo Seltzer. In **arXiv 2024**, <https://arxiv.org/pdf/2404.00766>.

Aggregate-driven trace visualizations for performance debugging.

Vaastav Anand, Matheus Stolet, Thomas Davidson, Ivan Beschastnikh, Tamara Munzner, and Jonathan Mace. In **arXiv 2020**, <https://arxiv.org/pdf/2010.13681>.

Posters

Online specialization of systems with Iridescent.

Vaastav Anand. At Student Research Competition at Symposium on Operating Systems Principles, **SRC @ SOSP 2024**.

Millenial: Modular Microservice Macrobenchmarks.

Vaastav Anand, Antoine Kaufmann, Deepak Garg, Jonathan Mace. At Operating Systems Design and Implementation, **OSDI 2022**.

Millenial: Modular Microservice Macrobenchmarks.

Vaastav Anand. At Student Research Competition at Symposium on Operating Systems Principles, **SRC @ SOSP 2021**.

Millenial: Modular Microservice Macrobenchmarks.

Vaastav Anand. At Eurosys Doctoral Workshop, **EuroDW 2021**.

Sifter: Scalable Sampling for Distributed Traces, without Feature Engineering.

Pedro Las-Casas, Giorgi Papakerashvili, **Vaastav Anand**, Jonathan Mace. At Symposium on Cloud Computing, **SoCC 2019**.

Dara: Hybrid Model Checking of Distributed Systems. **Vaastav Anand**.

At Student Research Competition at The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering, **SRC @ ESEC/FSE 2018**.

Employment

Research Intern, Microsoft

2024

Azure Research - Systems

- Worked on “Automated Service Design with LLMs” project.
- Mentors: Rodrigo Fonseca, Alok Gautam Kumbhare
- Collaborators: Pedro Las-Casas, Celine Irvine, Jonathan Mace, Gagan Somashekar, Chetan Bansal

Research Intern, MPI-SWS

2019

- Instrumented DeathStarBench applications with XTrace tracing for large-scale experiments for Sifter.

Undergraduate Research Assistant

2018

University of British Columbia, Under Ivan Beschastnikh

- Designed and developed Dara, a tool for model checking distributed systems.

Software Engineering Intern, NVIDIA

2017

MODS (Modular Diagnostics) Team

- Implemented memory repair sequences for faulty High Bandwidth Memory (HBM).
- Designed, developed and implemented a CUDA based full memory stress test.

Software Engineering Intern, NVIDIA

2016

MODS (Modular Diagnostics) Team

- Implemented a synchronization option for CUDA based linpack tests to synchronize CUDA kernel launches within 30us across multiple GPUs.

Software Developer Intern, Thinkbox Software

2015-2016

Sequoia Team

- Designed, developed and implemented the 3D PDF export option in Sequoia.

Teaching

Instructor, Saarland University

2025

- Reliability in Modern Cloud Systems

2025

Teaching Assistant, Saarland University

2021

- 1 semester TA for Distributed Systems (Core Course)

2021

Graduate Teaching Assistant

2018-2020

University of British Columbia, Department of Computer Science

- 1 semester TA for Computer Hardware and Operating Systems (CPSC 313) 2020

	<ul style="list-style-type: none"> • 1 semester TA for Graduate Operating Systems (CPSC 508) 2019 • 1 semester TA for Distributed Systems (CPSC 416) 2018
	Academic Assistant 2018
	Vancouver Summer Program
	<ul style="list-style-type: none"> • Teaching Assistant for the Algorithms and the World Wide Web course.
	Undergraduate Teaching Assistant 2014-2018
	University of British Columbia, Department of Computer Science
	<ul style="list-style-type: none"> • 1 semester TA for Introduction to Software Engineering (CPSC 210) 2018 • 1 semester TA for Advanced Operating Systems (CPSC 415) 2017 • 1 semester TA for Intermediate Algorithm Design and Analysis (CPSC 320) 2017 • 1 semester TA for Computer Hardware and Operating Systems (CPSC 313) 2016 • 1 semester TA for Introduction to Computer Systems (CPSC 213) 2015 • 3 semesters TA for Models of Computation (CPSC 121) 2014-2015
Awards	3rd Place, Graduate Category, ACM SRC Grand Finals 2025
	1st Place, Graduate Category, SOSP'24 SRC 2024
	SoCC Student Scholarship 2019
	2nd Place, Undergraduate Category, FSE'18 SRC 2018
	SIGSOFT CAPS Award 2018
	UBC International Tuition Award 2018-2019
	Work Learn International Undergraduate Research Award 2018
	UBC Faculty of Science, International Student Award 2015, 2018
	ACM ICPC PacNW Regional Contest Division 2 Champion 2017
	UBC Trek Excellence Scholarship 2016-17, 2017-2018
	UBC Dean's Honor List 2014, 2015, 2017
	UBC Computer Science Student Service Award 2015
	GIIS Global Citizen Scholarship 2011-2013
Service	Academic Service
	<ul style="list-style-type: none"> • Program Committee Member <ul style="list-style-type: none"> – EuroSys Posters 2025 – CS-Can Student Symposium 2019 • Organizer <ul style="list-style-type: none"> – Tutorial on using Blueprint to accelerate Microservice Research @ SOSP'24 – Panel on Reproducibility and Replication @ HotOS'23 • Publicity Chair <ul style="list-style-type: none"> – The Journal of Systems Research 2022-2023. • Systems Trivia Co-Organizer <ul style="list-style-type: none"> – HotOS 2023 – SOSP 2021 – HotOS 2021 • Organization Committee Member <ul style="list-style-type: none"> – The Cornell, Maryland, Max Planck Pre-doctoral Research School (CMMRS) 2022

Invited Talks	Blueprint: A Toolchain for Highly-Reconfigurable Microservices Event: CNI Seminar Series @ IISc Bangalore Host: Sreeshma Shiv	Jun 2024
	Blueprint: A Toolchain for Highly-Reconfigurable Microservices Event: Azure Monitor Day of Learning @ Microsoft Redmond Host: Kalyana Sundaram	Jun 2024
	Blueprint: A Toolchain for Highly-Reconfigurable Microservices Event: Trustworthy Systems Seminar @ UNSW Sydney Host: Peter Chubb	Aug 2023
	Blueprint: A Toolchain for Highly-Reconfigurable Microservices Event: Basser Seminar Series @ University of Sydney Host: Zhanna Sarsenbayeva	Aug 2023
	Millenial: Modular Microservice Macrobenchmarks Event: Tracing Jamboree @ Emory University (virtual) Organizers: Avani Wildani, Ymir Vigfusson	Jun 2021
Skills	<i>Programming Languages:</i> C++, Go, Python, C, Bash, JavaScript, Java, CUDA <i>Tools:</i> IntelliJ, GDB, Eclipse, Visual Studio, Git, Perforce, Vim, L ^A T _E X	
Selected Non-Research Projects	Distributed Clocks	2018-2020
	Inter-operable vector clock logging library <ul style="list-style-type: none"> • Distributed clocks implements vector clocks in Go, Java, C++ and C • https://github.com/DistributedClocks 	
	Datasets <ul style="list-style-type: none"> • Vaastav Anand. Fantasy Premier League Gameweek-By-Gameweek Dataset. https://github.com/vaastav/Fantasy-Premier-League • Vaastav Anand and Jonathan Mace. X-Trace trace dataset for DeathStarBench. https://gitlab.mpi-sws.org/cld/trace-datasets/deathstarbench_traces 	
Interests	<i>Computing:</i> Distributed Systems, Operating Systems, Software Engineering <i>Extra Curricular:</i> Soccer, Linguistics, Cricket.	