

Laurent Bindschaedler

Research Group Leader at Max Planck Institute for Software Systems (MPI-SWS)

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RESEARCH INTERESTS

🗄 Big Data Systems

🔗 Graph Processing

🧠 Machine Learning

⚙ ML for Systems

🏗 Distributed Systems

💾 Storage

🗄 Databases

☁ Cloud Computing

🔗 Blockchain

EDUCATION

Ph.D. in Computer Science, EPFL

Sep. 2015 - Sep. 2020

- Thesis: An Architecture for Load Balance in Computer Cluster Applications. Advisor: Prof. Willy Zwaenepoel.
- 30 ECTS. Classes: Principles of Computer Systems, Applied Data Analysis, Natural Language Processing.

M.S. in Computer Science, EPFL (GPA: 5.54/6)

Sep. 2009 - Jun. 2011

- Thesis: Track Me If You Can. Host: Nokia Research Center. Advisor: Prof. Jean-Pierre Hubaux.

B.S. in Computer Science, EPFL (GPA: 5.59/6)

Sep. 2006 - Jun. 2009

- Thesis: Secure SMS. Advisor: Prof. Jean-Pierre Hubaux.

EMPLOYMENT HISTORY

Research Group Leader, MPI-SWS

Nov. 2022 - Present

- Data Systems Group (DSG). Current: 2 graduate students, 1 MS student, 2 interns.
- Projects: Complex AI Systems (agentic infrastructure, LLM caching, code intelligence, LLM-enhanced databases), Learned Systems (benchmarking, updateable indexes), Graph Systems (large-scale GNN training, unified processing), Blockchain & Web3 (decentralized systems, analytics).

Postdoctoral Fellow, MIT CSAIL

Sep. 2020 - Nov. 2022

- Data Systems Group, Prof. Tim Kraska. Projects: Real-Time Graph Pattern Mining, Benchmarking Learned Systems.

Doctoral Assistant, EPFL

Sep. 2015 - Sep. 2020

- Operating Systems Laboratory (LABOS). Advisor: Prof. Willy Zwaenepoel. IT administrator since 2018.

Research Assistant, EPFL

Mar. 2014 - Aug. 2015

- LABOS. Technical coordinator for Data Center Observatory. Designer of Chaos graph processing system.

IT Consultant, Lobnek Wealth Management

Jul. 2013 - Feb. 2014

- Acting Head of IT. Modernized infrastructure, built interactive analytics, implemented data integration.

Co-Founder & VP Engineering, LakeMind

Aug. 2011 - Jun. 2013

- Cloud service troubleshooting startup. EPFL incubator. Venture Kick funded. Built event processing pipeline and ML algorithms.

Intern, Nokia Research Center

Jan. 2011 - Jul. 2011

- Built location privacy-preserving service prototype for Nokia-EPFL NIC Trial (~100 participants).

IT Pioneer, Swiss Armed Forces (Chief of Staff, 1st Army Region)

Jul. 2006 - Dec. 2018

PRIZES, AWARDS, FELLOWSHIPS

May 2026 Gold Reviewer, ICML 2026
May 2025 Associate Fellow, University of Saarland
May 2020 Early Postdoc.Mobility Fellowship, Swiss National Science Foundation
Mar. 2020 Best Presentation Award, ASPLOS'20
Dec. 2017 Teaching Assistant Award, EPFL IC Faculty
Dec. 2017 Public Prize Winner, Exposure Science Movie Hackathon
Sep. 2015 Ph.D. Fellowship, EPFL EDIC
Jan. 2012 Venture Kick 1st Round, LakeMind

PUBLICATIONS

- [BCCA '26] Agent Flight Recorder: Tamper-Evident Audit Trails with On-Chain Anchoring for Long-Horizon Tool-Using Agents. [PDF]
L. Bindschaedler, Q. Botha, C. Siebenbrunner. *BCCA Conference*.
- [BCCA '26] Bonded Recourse for Smart-Contract Settlement of Compensable Agent Side Effects. [PDF]
L. Bindschaedler, Q. Botha, C. Siebenbrunner. *BCCA Conference*.
- [ICML '26] The Invisible Lottery: How Subtle Cues Steer Algorithm Choice in LLM Code Generation. [PDF]
A. Narula, M. Rafique, L. Bindschaedler. *ICML Conference*.
- [GRADES-NDA '26] Informed Search for Regular Path Query Reachability. [PDF]
D. Rivera Correa, L. Bindschaedler. *GRADES-NDA Workshop*.
- [EuroMLSys '26] ClawVM: Harness-Managed Virtual Memory for Stateful Tool-Using LLM Agents. [PDF]
M. Rafique, L. Bindschaedler. *EuroMLSys Workshop*.
- [ARCS '26] Rebooting Microreboot: Architectural Support for Safe, Parallel Recovery in Microservice Systems. [PDF]
L. Bindschaedler. *ARCS Conference*.
- [DOLAP '26] Semantic Caching for OLAP via LLM-Based Query Canonicalization. [PDF]
L. Bindschaedler. *DOLAP Workshop*.
- [DL4C '25] SQL-of-Thought: Multi-agentic Text-to-SQL with Guided Error Correction. [PDF]
S. Chaturvedi, A. Chadha, L. Bindschaedler. *DL4C Workshop*.
- [EMNLP '25] Cache Saver: A Modular Framework for Efficient, Affordable, and Reproducible LLM Inference. [PDF]
N. Potamitis, L.H. Klein, B. Mohammadi, C. Xu, A. Mukherjee, N. Tandon, L. Bindschaedler, A. Arora. *EMNLP Conference*.
- [RE4Web3 '25] A Computational Decision Support Workflow for Requirement Engineering in DAOs. [PDF]
Q. Botha, L. Bindschaedler, C. Siebenbrunner. *RE4Web3 Workshop*.
- [RE4Web3 '25] A Requirements Analysis for a Decentralized Mathematics Prediction Market. [PDF]
Q. Botha, L. Bindschaedler, C. Siebenbrunner. *RE4Web3 Workshop*.
- [HPDC '25] F3: An FPGA-accelerated FaaS Framework. [PDF]
C. Mainas, M. Lambeck, B. Scheufler, L. Bindschaedler, A. Koshiba, P. Bhatotia. *HPDC Conference*.
- [GRADES-NDA '25] Everything You Wanted to Know About Graph Neural Network Partitioning (But Were Afraid to Ask). [PDF]
C. Xu, L. Bindschaedler. *GRADES-NDA Workshop*.
- [DL4C '25] LoRACode: LoRA Adapters for Code Embeddings. [PDF]
S. Chaturvedi, A. Chadha, L. Bindschaedler. *DL4C Workshop*.
- [EuroMLSys '25] May the Memory Be With You: Efficient and Infinitely Updatable State for Large Language Models. [PDF]
E. Chukwu, L. Bindschaedler. *EuroMLSys Workshop*.
- [DOLAP '25] The Case for Instance-Optimized LLMs in OLAP Databases. [PDF]
B. Mohammadi, L. Bindschaedler. *DOLAP Workshop*.
- [WSDM '25] Towards Reliable Latent Knowledge Estimation in LLMs: Zero-Prompt Many-Shot Based Factual Knowledge Extraction. [PDF]
Q. Wu, M.A. Khan, S. Das, V. Nanda, B. Ghosh, C. Kolling, T. Speicher, L. Bindschaedler, K. Gummadi, E. Terzi. *WSDM Conference*.
- [EdgeSys '24] AlterEgo: A Dedicated Blockchain Node For Analytics. [PDF]
Q. Guo, M. Alizadeh, A. Falahati, L. Bindschaedler. *EdgeSys Workshop*.
- [ICDE '23] Unshackling Database Benchmarking from Synthetic Workloads. [PDF]
P. Negi*, L. Bindschaedler*, M. Alizadeh, T. Kraska, J. Leeka, A. Gruenheid, M. Interlandi. *ICDE Workshop*.
- [CompAuto '22] Accurate Automatic Camera Calibration on Low-Quality CCTV Traffic Video Streams. [PDF]
A. Durai, S. Vempati, L. Bindschaedler. *CompAuto Conference*.
- [EuroSys '21] Tesseract: Distributed, General Graph Pattern Mining on Evolving Graphs. [PDF]
L. Bindschaedler, J. Malicevic, B. Lepers, A. Goel, W. Zwaenepoel. *EuroSys (21% acceptance rate)*.
- [SMDB '21] Towards a Benchmark for Learned Systems. [PDF]
L. Bindschaedler, A. Kipf, T. Kraska, R. Marcus, U.F. Minhas. *SMDB Workshop*.
- [ASPLOS '20] Hailstorm: Disaggregated Compute and Storage for Distributed LSM-based Databases. [PDF]
L. Bindschaedler, A. Goel, W. Zwaenepoel. *ASPLOS (18% acceptance rate)*. **Best Presentation Award**.
- [THESIS] An Architecture for Load Balance in Computer Cluster Applications. [PDF]
L. Bindschaedler. *Doctoral Dissertation, EPFL*.
- [EuroSys '18] Rock You Like a Hurricane: Taming Skew in Large Scale Analytics. [PDF]
L. Bindschaedler, J. Malicevic, N. Schiper, A. Goel, W. Zwaenepoel. *EuroSys (16% acceptance rate)*.
- [SOSP '15] Chaos: Scale-out Graph Processing from Secondary Storage. [PDF]
A. Roy, L. Bindschaedler, J. Malicevic, W. Zwaenepoel. *SOSP (17% acceptance rate)*.
- [REPORT] Benchmarking X-Stream and Graphchi. [PDF]
L. Bindschaedler, A. Roy. *Technical Report, EPFL*.
- [PerCom '12] Big Brother Knows Your Friends: On Privacy of Social Communities in Pervasive Networks. [PDF]
I. Bilogrevic, M. Jadhwal, I. Lam, I. Aad, P. Ginzboorg, V. Niemi, L. Bindschaedler, J.-P. Hubaux. *PerCom Conference*.
- [NDSS '12] Track Me If You Can: On the Effectiveness of Context-based Identifier Changes in Deployed Mobile Networks. [PDF]
L. Bindschaedler, M. Jadhwal, I. Bilogrevic, I. Aad, P. Ginzboorg, V. Niemi, J.-P. Hubaux. *NDSS (18% acceptance rate)*.
- [MobileHCI '11] Making Mobile Augmented Reality a Reality. [PDF]
L. Bindschaedler, H. Knoche, J. Huang. *MobileHCI Conference*.

SUPERVISION OF STUDENTS

Graduate Students

Jinhao Hu, Bardia Mohammadi

Affiliated Graduate Students

Qi Guo

Master Thesis

Parul Negi - Satellite Data Augmentation (Fall '24)

Julian Klein - LLMs with DuckDB (Fall '25)

Bachelor Thesis

Sascha Hägele - Strategic Slashing in TON (Fall '25)

Master Semester Projects

Mario Bucev - Graph Ingestion (Spring '19)

Diego Antognini - Decentralized Storage (Spring '16)

Vlad Haprian - Load Balancing for Chaos (Spring '16)

Junyao Zhao - HDFS for X-Stream (Summer '15)

Interns

Akanksha Narula - Algorithm Steering in LLM Code Generation (2025-26)

Diego Rivera Correa - Relational Path Queries in Graphs (Summer '25)

Bardia Mohammadi - Systems for Complex AI (Summer '24)

E. I. Namuganga - Adversarial Benchmarking (Summer '24)

Excel Chukwu - Updatable LLMs (Summer '24)

Bhumika Mittal - Graph Storage (Summer '24)

Pranay Borgohain - Scaling LLM Context (Summer '24)

Saumya Chaturvedi - Multi-LoRA Selection (Summer '24)

Attreyee Mukherjee - AI Model Batching (Summer '24)

Leshna Balara - Learned Index (Spring '24)

Abhinit Mahajan - Ghost Data (Spring '24)

Mihir Trivedi - Satellite Data (2023-24)

Harsh Parikh - Satellite Data (2023-24)

Ali Falahati - AlterEgo (Summer '23)

Mahdi Alizadeh - AlterEgo (Summer '23)

Giorgos Kosmas - Learned Index (Summer '23)

Hardik Katehara - Graph Storage (Summer '23)

TEACHING ACTIVITIES

Lecturer, Operating Systems (OS2026) - MPI & UdS Undergraduate, ~80 students. Co-instructor.	Spring 2026
Lecturer, Operating Systems (OS2024) - MPI & UdS Undergraduate, ~50 students. Co-instructor.	Spring 2024
Lecturer, Systems for Large Language Models - MPI & UdS Seminar, 12 students. Co-instructor.	Spring 2023
Lecturer, Distributed Systems (DS2023) - MPI & UdS Undergraduate, ~50 students. Co-instructor.	Spring 2023
Guest Lecturer, Real-time Systems (CS-321) - EPFL 1-hour lecture on ContikiOS and protothreads. ~50 students.	Fall 2019
Guest Lecturer, Operating Systems Introduction (CS-323) - EPFL 2-hour lecture on Virtual Machines. ~100 students.	Spring 2018, 2019
Head TA, Real-time Systems (CS-321) - EPFL Designed and led lab sessions. ~50 students.	Fall 2019
Teaching Assistant, Operating Systems Intro & Implementation (CS-323/323a) - EPFL Team of 4 Ph.D. TAs. ~100 students (Intro), ~30 (Impl). Designed 4 mini-projects.	Spring 2017-19
Teaching Assistant, Calculus III (MATH-203) - EPFL Team of 4 Ph.D. TAs coordinating ~20 undergraduate TAs. ~300 students.	Fall 2018
Teaching Assistant, Information, Computation, Communication (CS-119) - EPFL Team of 4 Ph.D. TAs coordinating ~20 undergraduate TAs. ~200 students.	Fall 2016, 2017
Head TA, System Oriented Programming (CS-207) - EPFL Coordinated 8 undergraduate TAs. ~150 students.	Spring 2016
Student TA, Various Undergraduate Classes - EPFL Information Technology, Systems Programming, Software Engineering.	2009-2011

PROFESSIONAL SERVICE

Apr. 2027	ERC	ASPLOS	Apr. 2027	PC	ACM EuroSys
Dec. 2026	Reviewer	NeurIPS	Oct. 2026	Organizer	HARNESS Tutorial (ACM SOSP)
Sep. 2026	PC	ACM HotStorage	Jul. 2026	Gold Reviewer	ICML
Apr. 2026	Reviewer	AI in the Wild (ICLR Workshop)	Mar. 2026	PC	DOLAP
Jun. 2025	PC	USENIX OSDI	Mar. 2025	PC	ACM EuroSys
Mar. 2025	EPC	ASPLOS	Mar. 2025	PC	DOLAP
Dec. 2024	EPC	ACM/IFIP Middleware	Nov. 2024	PC	ACM SOSP
Jun. 2024	PC	USENIX OSDI	Apr. 2024	PC	ASPLOS
Apr. 2024	PC	EuroMLSys	Apr. 2024	PC	ACM EuroSys
Mar. 2024	PC	DOLAP	Jan. 2024	Reviewer	VLDB Journal
Dec. 2023	PC	ACM/IFIP Middleware	Oct. 2023	Web Chair	ACM SOSP
Jul. 2023	PC (Heavy)	USENIX ATC	May 2023	PC	ACM EdgeSys
Mar. 2023	PC	ASPLOS	Feb. 2023	Evaluator	FRQNT
Jul. 2022	PC (Heavy)	USENIX ATC	Apr. 2022	PC	EuroMLSys
Nov. 2021	PC	WAIN	Jul. 2021	EPC	USENIX OSDI
Jul. 2021	PC	USENIX ATC	Jun. 2021	PC	ACM SYSTOR
Apr. 2021	PC	EuroMLSys	Sep. 2020	Reviewer	ACM TOCS
Jul. 2020	EPC	USENIX ATC	Apr. 2020	PC Chair	1st EuroGraph
Feb. 2018	EPC	ACM PPOPP			

TALKS

Jun. 2026	Fleets Without a Kernel: The Distributed Systems Substrate Agentic AI Is Missing (Invited Talk)	DP2E-AI'26
May 2026	The Case for Deaths Per Token (Keynote)	Green AI'26
May 2026	What Survives When Code Doesn't? (Invited Talk)	KAUST
Apr. 2026	What Survives When Code Doesn't? (Keynote)	EuroMLSys'26
Apr. 2026	ClawVM: Harness-Managed Virtual Memory for LLM Agents	EuroMLSys'26
Mar. 2026	Rebooting Microreboot: Safe Recovery for Microservices	ARCS'26
Mar. 2026	Semantic Caching for OLAP	DOLAP'26
Oct. 2025	Client-Side Reuse for LLM Workflows	Purdue University
Nov. 2024	Virtualization and Virtual Machines	HES-SO
Nov. 2024	AlterEgo: A Dedicated Blockchain Node for Analytics	Saar Blockchain Meetup
Oct. 2024	Byzantine Fault Tolerance for Instant Payments	Saar Blockchain Meetup
Nov. 2023	Virtualization and Virtual Machines	HES-SO
Sep. 2023	When AI Works and Workers Adapt	SECO
May 2023	Introduction to Learned Index	MPI Lightning Talk
Mar. 2023	Machine Learning (m)eats Software	BWInf 2023
Feb. - Oct. 2022	Designing Scalable, Interactive, and Autonomous Big Data Systems	Aalborg U., NTNU, Imperial, U. Amsterdam, Rochester U., TU Munich, U. Reykjavik, U. Radboud, MPI-SWS U. Sydney
Jun. 2021	Tesseract: Fast, Scalable Graph Pattern Mining	SMDB'21
May 2021	LOKI: Towards a Benchmark for Learned Systems	EuroSys'21
Apr. 2021	Tesseract: Fast, Scalable Graph Pattern Mining	ASPLOS'20
Mar. 2020	Hailstorm: Disaggregated Compute and Storage	U. Toronto
Oct. 2019	Tesseract: Fast, Scalable Graph Pattern Mining	EcoCloud'19
May 2019	Tesseract: Fast, Scalable Graph Pattern Mining	EcoCloud'18
Jun. 2018	Rock You Like a Hurricane: Taming Skew	EuroSys'18
Apr. 2018	Rock You Like a Hurricane: Taming Skew	SOSP'15
Oct. 2015	Chaos: Scale-out Graph Processing	VentureKick'12
Jul. 2012	LakeMind: Making Cloud Service More Reliable	NDSS'12
Jan. 2012	Track Me If You Can	MobileHCI'11
Sep. 2011	ARLO: Making Mobile AR a Reality	

LANGUAGE SKILLS

- **French (Native)**
- **English (Fluent, C2)** - Cambridge Certificate of Proficiency
- **German (B2)** - Zertifikat Deutsch

PERSONAL INTERESTS

- **Improvisational Theatre** - Founding member of l'Improsture (French-speaking Switzerland)
- **Chess** - Junior player in Geneva chess club, ELO-rated
- **Piano** - Classical and pop