HAMISH NICHOLSON

PhD Candidate

@ hmnicholson12@gmail.com

@ hamish.nicholson@epfl.ch

L +1 617-407-0173 github.com/shamazo % nicholson.ai

in linkedin.com/in/hamish-nicholson/

TECHNICAL SKILLS

- Programming Languages: Proficient in C/C++ (14/17/20) and Python. Learning Rust. Experience in SQL, OCaml and Scala
- **Operating Systems:** Mac OS and Linux, particularly the Linux IO stack
- Tooling: LLVM, GDB, VTune, Perf, Git, Make, CMake, Bazel, AMD uProf/Intel PCM
- Misc: Excel and PowerPoint

EDUCATION

EPFL - École Polytechnique Fédérale de Lausanne 🛗 September 2021 - Present PhD. in Computer Science **Q** Lausanne, Switzerland • Tentative thesis: Efficient Data-intensive Systems Through Adaptive Data Movement • Advisor: Prof. Anastasia Ailamaki Harvard University 🛗 September 2016 - May 2021 A.B. with High Honors in Computer Science Cambridge, MA • Thesis: Psychophysical Evaluation of Deep Re-Identification Models Coursework: - Data Systems, Machine Learning, Cloud Computing - Probability and Statistics - Abstract Algebra, Linear Algebra, Multivariable Calculus **EXPERIENCE EPFL DIAS** 🛗 September 2021 – Present Doctoral Assistant ♥ Lausanne, Switzerland Lead research on mitigating the data movement bottleneck for analytical query processing on modern heterogeneous hardware • Mentor masters student research projects and theses • Manage the lab's server infrastructure Systems Research @ Google 🛗 June 2023 – February 2024 Student Researcher Sunnyvale, California Conducted research at the intersection of computer architecture and database management systems • Full-time June - September 2023, part-time September 2023 - February 2024. • Nominated for and received a Peer Bonus for my work Ocient 🛗 September 2020 – September 2021 Software Engineer I/II ♥ Chicago, IL Transitioned the build system from Make to Bazel, accelerating developer productivity Worked on user access control and secondary index features • Fractal Computers (now Whist) 🛗 May 2020 - August 2020 Software Engineer Cambridge, MA • Developed a new build system for a multi-platform application Designed and built a continuous integration pipeline, significantly reducing the number of bugs deployed to production **Perceptive Automata** 🛗 June 2019 – September 2019 Data Science Intern Somerville, MA Integrated techniques from psychology and computer vision to better understand pedestrian re-identification performance under degraded conditions. Jet Propulsion Laboratory - NASA 🛗 June 2018 – September 2018 Data Science Intern Pasadena, CA Processed data from the Juno mission to analyze the upper atmosphere of Jupiter

- PUBLICATIONS
- Hamish Nicholson, Periklis Chrysogelos, and Anastasia Ailamaki (Dec. 2023). "HPCache: Memory-Efficient OLAP through Proportional Caching Revisited". In: The VLDB Journal. ISSN: 0949-877X. DOI: 10.1007/s00778-023-00828-7.
- Hamish Nicholson, Andreea Nica, Aunn Raza, Viktor Sanca, and Anastasia Ailamaki (2023). "Chaosity: Understanding Contemporary NUMA-architectures". In: Performance Evaluation and Benchmarking: 15th TPC Technology Conference, TPCTC 2023, Vancouver, BC, Canada, September 2, 2023. Vancouver, BC, Canada.
- Hamish Nicholson, Aunn Raza, Periklis Chrysogelos, and Anastasia Ailamaki (2023). "HetCache: Synergising NVMe Storage and GPU acceleration for Memory-Efficient Analytics". In: 13th Conference on Innovative Data Systems Research, CIDR 2023, Amsterdam, NL, January 8-11, 2023.

- Hamish Nicholson, Periklis Chrysogelos, and Anastasia Ailamaki (2022). "HPCache: Memory-Efficient OLAP Through Proportional Caching". In: International Workshop on Data Management on New Hardware, DaMoN 2022, Philadelphia, PA, USA, 13 June 2022. ACM. URL: https://doi.org/10.1145/3533737.3535100.
- Mel McCurrie, Hamish Nicholson, Walter J. Scheirer, and Samuel E. Anthony (2020). "Modeling Score Distributions and Continuous Covariates: A Bayesian Approach". In: 2020 IEEE International Joint Conference on Biometrics, IJCB 2020, Houston, TX, USA, September 28 October 1, 2020. IEEE. URL: https://doi.org/10.1109/IJCB48548.2020.9304938.

TALKS

• Flash-based GPU-accelerated Queries, HPTS 2022, Asilomar, USA, October 2022

SERVICE

• SIGMOD 2023 Availability Committee

TEACHING

EPFL

TA for Math-232: Probability and statisticsImage: Fall 2023TA for CS-460: Systems for data management and data scienceSpring 2023/2024/2025TA for CS-119g: Information, calculation, communicationImage: Fall 2022TA for CS-322: Introduction to database systemsSpring 2022HarvardTutor for CS-51: Abstraction and design in computationCA for CS-50: Introduction to computer scienceImage: Spring 2018Fall 2017

HONORS AND AWARDS

• EPFL IC Teaching Assistant Award 2023

- EPFL IC Distinguished Service Award 2022
- EPFL EDIC Ph.D. Fellowship 2021

LANGUAGES

- Fluent: English
- Elementary: French

CITIZENSHIP

- Australian
- American
- Canadian