Ben Simner

Contact

Department of Computer Science and Technology William Gates Building 15 JJ Thomson Avenue University of Cambridge Cambridge CB3 0FD Email: ben.simner@cl.cam.ac.uk
Web: https://2plus2a.com/

Positions & Experience

2025- Research Associate, Computer Lab, University of Cambridge.

2023-2025 Research Assistant, Computer Lab, University of Cambridge.

2018-2025 **PhD** in Computer Science, University of Cambridge.

Autumn'18 Intern, University of Cambridge.

Summer'17 Intern, Microsoft Research, Cambridge.

Spring'17 Webdev, https://greensdictofslang.com/

Summer'16 Intern, University of York.

May'13 Work experience, Citrix, Cambridge.

Qualifications

2018-2025 PhD, Computer Science, University of Cambridge

Thesis: Arm system semantics

2014-2018 MEng, Computer Science, University of York

First-class honours (with distinction)

Dissertation: Automated comparison of implementations of purely functional data structures

2012-2014 **A-Levels**, King Edward VI School, Bury St. Edmunds.

Mathematics (A*), Physics (A), Computing (A)

Publications

Preamble In this field, the primary venue for publication is peer-reviewed conference proceedings. These order authors by contribution, often (but not always) with the PI being last. Those listed are all full-length papers, and not extended abstracts or pre-publications. The Symposium on Operating System Principles (SOSP), International Symposium on Computer Architecture (ISCA), Computer Aided Verification (CAV), and the European Symposium on Programming (ESOP) are flagship venues in their fields, which the Australian CORE rankings rate as A or A*, signifying the top 20% of leading Computer Science venues. These venues are all competitively peer-reviewed, with acceptance rates typically around 15-25%, e.g. SOSP'25 accepted 66 of 368 submissions (18%), ISCA'25 accepted 132 of 570 submissions (23%).

\triangleright Ghost in the Android Shell: Pragmatic Test-oracle Specification of a Production Hypervisor [pdf]

Kayvan Memarian¹, **Ben Simner**¹, David Kaloper Meršinjak, Thibaut Pérami, Peter Sewell in Proceedings of the 31st ACM SIGOPS Symposium on Operating Systems Principles (SOSP'25), pp685-700 (16pp)

¹These authors contributed equally.

> Arm system semantics [pdf]

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Ph.D. thesis, 2025

> Precise exceptions in relaxed architectures [pdf]

Ben Simner, Alasdair Armstrong, Thomas Bauereiss, Brian Campbell, Ohad Kammar, Jean-Pichon Pharabod, and Peter Sewell

in Proceedings of the 52nd International Symposium on Computer Architecture (ISCA'25), pp211-224 (14pp) $$\tt BEST\ PAPER\ AWARD$$

Matthew J. Parkinson, Sylvan Clebsch, and **Ben Simner** in Proceedings of the 2023 ACM SIGPLAN International Symposium on Memory Management, pp85-96 (12pp)

▷ Isla: Integrating full-scale ISA semantics and axiomatic concurrency models (journal version) [pdf]

Alasdair Armstrong, Brian Campbell, **Ben Simner**, Christopher Pulte, and Peter Sewell in Formal Methods in System Design (FMSD), Volume 63, May 2023, pp110-133 (24pp)

Ben Simner, Alasdair Armstrong, Jean Pichon-Pharabod, Christopher Pulte, Richard Grisenthwaite, and Peter Sewell

in Programming Languages and Systems: 31st European Symposium on Programming (ESOP'22), pp143-173 (31pp)

- ▶ Isla: Integrating full-scale ISA semantics and axiomatic concurrency models [pdf] Alasdair Armstrong, Brian Campbell, Ben Simner, Christopher Pulte, and Peter Sewell in Proceedings Part I of Computer Aided Verification: 33rd International Conference (CAV'21), pp303-316 (14pp)
- ▶ ARMv8-A system semantics: instruction fetch in relaxed architectures [pdf]
 Ben Simner, Shaked Flur, Christopher Pulte, Alasdair Armstrong, Jean Pichon-Pharabod,
 Luc Maranget, Peter Sewell
 in Programming Languages and Systems: 29th European Symposium on Programming (ESOP'20),
 pp626-655 (30pp)
- Starling: Lightweight Concurrency Verification With Views [pdf]
 Matthew Windsor, Mike Dodds, Ben Simner, Matthew J Parkinson
 in Proceedings Part I of Computer Aided Verification: 29th International Conference (CAV'17),
 pp544-569 (26pp)

Awards

I am co-author on two grants/awards. These are awards based substantially on my research and ideas, and I am the named individual in the proposals.

> ERC Proof-of-Concept Grant

ELVER-CHECK: Well-grounded Lightweight Assurance for Critical Systems Software. 2024. ERC-2024-POC/101189371. €150,000. Peter Sewell (PI), **Ben Simner** (co-author), Kayvan Memarian (co-author), Jean Pichon-Pharabod (co-author).

> Amazon Research Award

The Foundations of Cloud Virtual-machine Isolation. 2023. \$54,603 cash award plus \$20,000 in AWS credits. Peter Sewell (PI), **Ben Simner** (co-author).

Teaching

Project students (co-supervisor):

2023-24 Jasper Parish, Part II.

2023-24 Ben Stokes, Part II.

Supervisions:

2018-19 Foundations of Computer Science, Part IA (3 groups)

2018-19 Hoare Logic & Model Checking, Part II (3 groups)

2019-20 Concurrent & Distributed Systems, Part IB (3 groups)

2023-24 Semantics, Part IB (5 groups)