

HotOS 2025 Workshop Program

Tuesday – May 13, 2025

14:00–17:00 **Registration Desk in Mount Stephen Hall (Mezzanine 1)**

18:00–20:00 **Welcome Reception in Mount Stephen Hall (Mezzanine 1)**

Wednesday – May 14, 2025

8:00–9:00 **Breakfast Buffet (Alhambra Room)**

9:00–10:30 **How to be in this world: Securing Adolescent AIs**

Session Chair: Timothy Roscoe

Introductory Remarks

1. How I learned to stop worrying and love learned OS policies

Divyanshu Saxena, Jiayi Chen (The University of Texas at Austin); Sujay Yadalam (University of Wisconsin-Madison); Yeonju Ro, Rohit Dwivedula, Eric H. Campbell, Aditya Akella, Christopher J. Rossbach (The University of Texas at Austin); Michael Swift (University of Wisconsin–Madison)

2. Contextual Agent Security: A Policy for Every Purpose

Lillian Tsai, Eugene Bagdasarian (Google)

3. Guillotine: Hypervisors for Isolating Malicious AIs

James Mickens, Sarah Radway (Harvard University); Ravi Netravali (Princeton University)

10:30–10:45 **Coffee Break (Alhambra Foyer)**

10:45–12:00 **Breaking the Big Goal of Verification into Smaller Pieces**

Session Chair: Alexandra (Sasha) Fedorova

4. Lightweight Hypervisor Verification: Putting the Hardware Burger on a Diet

Charly Castes (EPFL); François Costa (ETH Zurich); Nate Foster (Cornell and Jane Street); Thomas Bourgeat, Edouard Bugnion (EPFL)

5. Can Large Language Models Verify System Software? A Case Study Using FSCQ as a Benchmark.

Jianxing Qin, Alexander Du, Danfeng Zhang, Matthew Lentz, Danyang Zhuo (Duke University)

6. **Modular, Full-System Verification**

Gregory Malecha, Hoang-Hai Dang, Paolo G. Giarrusso, Simon Hudon, Jan-Oliver Kaiser (BlueRock Security, Inc); David Swasey (Riverside Research)

12:00–13:15 Lunch Buffet (Alhambra Room)

13:15–14:30 Tiered Storage: Yet More Systems Problems Solved with Another Layer of Indirection

Session Chair: Kim Keeton

7. **Tolerate It if You Cannot Reduce It: Handling Latency in Tiered Memory**

Musa Unal, Vishal Gupta, Yueyang Pan, Yujie Ren, Sanidhya Kashyap (EPFL)

8. **My CXL Pool Obviates Your PCIe Switch**

Yuhong Zhong (Columbia University); Daniel S. Berger (Microsoft Azure and University of Washington); Pantea Zardoshti, Enrique Saurez (Microsoft Azure); Jacob Nelson (Microsoft Research); Antonis Psistakis (University of Illinois Urbana-Champaign); Joshua Fried (MIT CSAIL); Asaf Cidon (Columbia University)

9. **Rethinking Tiered Storage: Talk to File Systems, Not Device Drivers**

Jiyuan Zhang, Jongyul Kim, Chloe Alverti, Peizhe Liu (University of Illinois Urbana-Champaign); Weiwei Jia (The University of Rhode Island); Tianyin Xu (University of Illinois Urbana-Champaign)

14:30–15:00 Coffee Break (Alhambra Foyer)

15:00–16:00 In Principle, Sure, but in Practice ...

Session Chair: James Mickens

10. **Uniting the world by dividing it: Federated maps to enable spatial applications**

Sagar Bharadwaj, Anthony Rowe, Srinivasan Seshan (Carnegie Mellon University)

11. **Real Life is Uncertain. Consensus Should Be Too!**

Reginald Frank, Octavio Lomeli, Neil Giridharan, Soujanya Ponnappalli (UC Berkeley); Marcos K. Aguilera (Broadcom); Natacha Crooks (UC Berkeley)

Panel: Panel: Opportunities and Challenges of Applying Machine Learning in Computer Systems

Cheng Tan (Northeastern University); Christopher J. Rossbach (UT Austin); Martin Maas (Google DeepMind)

Dinner on Your Own

Thursday – May 15, 2025

8:00–9:00 Breakfast Buffet (Alhambra Room)

9:00–10:15 Throwback Thursday: Classic OS Design Issues, Remixed

Session Chair: Don Porter

12. From Ahead-of- to Just-in-Time and Back Again: Static Analysis for Unix Shell Programs

Lukas Lazarek, Seong-Heon Jung (Brown University); Evangelos Lamprou (Brown University & DTU); Zekai Li, Anirudh Narsipur, Eric Zhao (Brown University); Michael Greenberg (Stevens Institute of Technology); Konstantinos Kallas (University of California, Los Angeles); Konstantinos Mamouras (Rice University); Nikos Vasilakis (Brown University)

13. Spork: A posix_spawn you can use as a fork

Manuel Vögele, Christopher Thomas, Timo Hönig (Ruhr University Bochum)

14. Apiary: An OS for the Modern FPGA

Katie Lim, Matthew Giordano (University of Washington); Irene Zhang (Microsoft Research); Baris Kasikci, Thomas Anderson (University of Washington)

10:15–10:45 Coffee Break (Alhambra Foyer)

10:45–12:00 What Can we Learn from Learned Systems?

Session Chair: Aurojit Panda

15. Storage Class Memory is Dead, All Hail Managed-Retention Memory: Rethinking Memory for the AI Era

Sergey Legtchenko, Ioan Stefanovici, Richard Black, Antony Rowstron, Junyi Liu, Paolo Costa, Burcu Canakci, Dushyanth Narayanan, Xingbo Wu (Microsoft Research)

16. Towards ML System Extensibility

Weixin Deng, Andy Ruan, Megan Frisella (University of Washington); Kai-Hsun Chen (Anyscale); SangBin Cho (xAI); Jack Tigar Humphries (Jane Street); Rui Qiao (Anyscale); Stephanie Wang (University of Washington)

17. Good things come in small packages: Should we build AI clusters with Lite-GPUs?

Burcu Canakci, Junyi Liu, Xingbo Wu, Nathanaël Cheriére, Dushyanth Narayanan, Paolo Costa, Sergey Legtchenko, Antony Rowstron (Microsoft Research)

12:00–13:15 Lunch Buffet (Alhambra Room)

13:15–14:30 Faster Pipes

Session Chair: Ana Klimović

18. **Batching with End-to-End Performance Estimation**

Avidan Borisov, Nadav Amit, Dan Tsafir (Technion)

19. **Stop Taking the Scenic Route: the Shortest Distance Between the CPU and the NIC is MMIO**

Wei Siew Liew, Md Ashfaqur Rahaman, James McMahon, Ryan Stutsman, Vijay Nagarajan (University of Utah)

20. **The NIC should be part of the OS.**

Pengcheng Xu, Timothy Roscoe (ETH Zurich)

14:30–14:50 Coffee Break (Alhambra Foyer)

Panel: AI Infrastructure: Can The Systems Community Close (most of) the AI Energy Gap?

Ricardo Bianchini (Microsoft Azure); Tim Dettmers (Allen Institute and CMU); Zhihao Jia (CMU); Philip Levis (Stanford); David Tennenhouse (National Science Foundation)

16:00–17:15 The Mind Fairly Boggles: Understanding Datacenter Application Behavior

Session Chair: Shivaram Venkataraman

21. **Rethinking RPC Communication for Microservices-based Applications**

Xiangfeng Zhu (University of Washington); Yang Zhou (UC Davis and UC Berkeley); Yuyao Wang, Xiangyu Gao, Arvind Krishnamurthy (University of Washington); Sam Kumar (University of California, Los Angeles); Ratul Mahajan (University of Washington); Danyang Zhuo (Duke University)

22. **Understanding the limitations of pubsub systems**

Atul Adya, Phil Bogle, Colin Meek (Databricks)

23. **Analyzing Metastable Failures**

Rebecca Isaacs (AWS); Rupak Majumdar (AWS and MPI-SWS); Peter Alvaro (UC Santa Cruz and AWS); Kiran-Kumar Muniswamy-Reddy (AWS); Mahmoud Salamati, Sadegh Soudjani (MPI-SWS)

18:00–19:00 Cocktails (Alhambra Foyer)

19:00–21:00 Banquet (Alhambra Room)

Friday – May 16, 2025

8:00–9:00 Breakfast Buffet (Alhambra Room)

9:00–10:15 Handling Malthusian Growth in Datacenter Infrastructure

Session Chair: Hugo Sadok

24. Serve Programs, Not Prompts

In Gim, Lin Zhong (Yale University)

25. Granular Resource Demand Heterogeneity

Yizhuo Liang, Ramesh Govindan, Seo Jin Park (University of Southern California)

26. Designing a Datacenter-wide Distributed Shared Log

Micah Murray, Wen Zhang, Aisha Mushtaq, Natacha Crooks (UC Berkeley); Aurojit Panda (New York University); Scott Shenker (ICSI AND UC Berkeley)

10:15–10:45 Coffee Break (Alhambra Foyer)

10:45–12:00 Hot OSes without a Hot Planet

Session Chair: Natacha Crooks

27. The Case for Energy Clarity

Fan Chung, Henry Kuo, George Candea (EPFL)

28. Leveraging Software Fault Tolerance for Longer Flash Hardware Lifespan

Aviad Zuck (Technion); Rob Johnson (Broadcom); Donald Porter (The University of North Carolina at Chapel Hill); Dan Tsafir (Technion)

29. Towards Resource-Efficient Compound AI Systems

Gohar Irfan Chaudhry (MIT CSAIL); Esha Choukse, Íñigo Goiri, Rodrigo Fonseca (Microsoft Azure Research – Systems); Adam Belay (MIT CSAIL); Ricardo Bianchini (Microsoft Azure)

Lunch on Your Own