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 Ponnapalli (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 Cheriere, 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 Tsafrir (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 Tsafrir (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