Rishabh Iyer

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Research Interests

I am a computer systems researcher. My current research focuses on developing techniques and tools that enable engineers to build systems with *well-understood performance and functionality*. My research draws on insights and techniques from operating systems, networking, computer architecture, formal methods, and compilers.

Education

Ecole Polytechnique Federale de Lausanne (EPFL) ..... 2017 - 2023
Doctor of Philosophy (PhD), Computer Science
Thesis: Latency Interfaces for Systems Code
Advisors: Prof. George Candea & Prof. Katerina Argyraki

Indian Institute of Technology Bombay ..... 2013 - 2017
Bachelor of Technology (BTech) with Honors, Electrical Engineering
Thesis: Performance Modeling and Dynamic Scheduling for Heterogeneous-ISA Processors
Advisor: Prof. Virendra Singh

Professional Experience

Assistant Professor of Computer Science at UC Berkeley ..... July 2025 - Present

Postdoctoral Scholar at UC Berkeley ..... March 2024 - June 2025
Supervisor: Prof. Sylvia Ratnasamy

Honors & Awards

Dimitris N. Chorafas Dissertation Award 2024
Awarded yearly to two doctoral theses across all schools at EPFL

eBPF Foundation Research Award 2024

Eurosys Roger Needham Dissertation Award 2024
Awarded yearly for best doctoral thesis in computer systems at a European university

ACM SIGOPS Dennis M. Ritchie Doctoral Dissertation Award 2023
Awarded yearly for best doctoral thesis in computer systems worldwide

Thesis nominated by EPFL for ACM Doctoral Dissertation Award 2023

Best Paper Award ..... VDAT 2019

Government of India KVPY Fellowship 2013

Publications

1. **The Case for Validating Inputs in Software-Defined WANs**
   Alexander Krentsel, Rishabh Iyer, Isaac Keslassy, Sylvia Ratnasamy, Anees Shaikh, Rob Shakir.
   Hot Topics in Networking (HotNets), 2024. Acceptance rate: 27.8%
2. **Revisiting Cache Freshness for Emerging Real-Time Applications**
   Ziming Mao, Rishabh Iyer, Scott Shenker, Ion Stoica.
   Hot Topics in Networking (HotNets), 2024. Acceptance rate: 27.8%

3. **If Layering Is Useful, Why Not Sublayering?**
   Rathin Singha, Rishabh Iyer, Charles Liu, Caleb Terrill, Todd Millstein, Scott Shenker, George Varghese.
   Hot Topics in Networking (HotNets), 2024. Acceptance rate: 27.8%

4. **Fast, Flexible, and Practical Kernel Extensions**
   Kumar Kartikeya Dwivedi, Rishabh Iyer, Sanidhya Kashyap.
   Symposium on Operating Systems Principles (SOSP), 2024. Acceptance rate: 17.3%
   Also accepted to the Linux Plumbers Conference (LPC), 2024
   eBPF Foundation Research Award
   Upstreamed into the Linux kernel mainline

5. **Automatically Reasoning About How Systems Code Uses the CPU Cache**
   Rishabh Iyer, Katerina Argyraki, George Candea.
   Symposium on Operating Systems Design and Implementation (OSDI), 2024. Acceptance rate: 15.6%
   Also accepted to the Linux Plumbers Conference (LPC), 2024

6. **Performance Interfaces for Hardware Accelerators**
   Jiacheng Ma, Rishabh Iyer, Sahand Kashani, Mahyar Emami, Thomas Bourgeat, George Candea.
   Symposium on Operating Systems Design and Implementation (OSDI), 2024. Acceptance rate: 15.6%

7. **Achieving Microsecond-Scale Tail Latency Efficiently with Approximate Optimal Scheduling**
   Rishabh Iyer, Musa Unal, Marios Kogias, George Candea.
   Symposium on Operating Systems Principles (SOSP), 2023. Acceptance rate: 18.7%

8. **The Case for Performance Interfaces for Hardware Accelerators**
   Rishabh Iyer, Jiacheng Ma, Katerina Argyraki, George Candea, Sylvia Ratnasamy.
   Hot Topics in Operating Systems (HotOS), 2023. Acceptance rate: 26.4%

9. **Performance Interfaces for Network Functions**
   Rishabh Iyer, Katerina Argyraki, George Candea.
   Symposium on Networked Systems Design and Implementation (NSDI), 2022. Acceptance rate: 19.7%

10. **Bypassing the Load Balancer Without Regrets**
    Marios Kogias, Rishabh Iyer, Edouard Bugnion.
    Symposium on Cloud Computing (SoCC), 2020. Acceptance rate: 24.4%
    Deployed as part of Alibaba's Next-Generation Load Balancer

11. **Classification-Based Scheduling for Heterogeneous-ISA Architectures**
    Nirmal Boran, Dinesh Yadav, Rishabh Iyer.
    Symposium on VLSI Design and Test (VDAT), 2020. Acceptance rate: 28.7%

12. **Verifying Software Network Functions with No Verification Expertise**
    Arseniy Zaostrovnykh, Solal Pirelli, Rishabh Iyer, Luis Pedrosa, Matteo Rizzo, Katerina Argyraki, George Candea.
    Symposium on Operating Systems Principles (SOSP), 2019. Acceptance rate: 13.7%

13. **Performance Contracts for Software Network Functions**
    Rishabh Iyer, Luis Pedrosa, Arseniy Zaostrovnykh, Solal Pirelli, Katerina Argyraki, George Candea.
    Symposium on Networked Systems Design and Implementation (NSDI), 2019. Acceptance rate: 14.7%

14. **Performance Modeling and Dynamic Scheduling for Heterogeneous-ISA Architectures**
    Nirmal Boran, Dinesh Yadav, Rishabh Iyer.
    Symposium on VLSI Design and Test (VDAT), 2019. Acceptance rate: 27.3%
    Awarded Best Paper

15. **Automated Synthesis of Adversarial Workloads for Network Functions**
    Luis Pedrosa, Rishabh Iyer, Arseniy Zaostrovnykh, Jonas Fietz, Katerina Argyraki.
    ACM SIGCOMM Conference (SIGCOMM), 2018. Acceptance rate: 18%

Service

- **Member of Program Committee** for NSDI 2026, NSDI 2025, Eurosys 2025, eBPF Workshop (SIGCOMM 2024), SOSP 2024 (Posters), and SOSP Doctoral Workshop 2024.

- **Member of EPFL Doctoral Admissions Committee** in 2022 and 2023.
- **Member of Artifact Evaluation Committee** for SOSP 2019.

Talks

- **Performance Interfaces for Systems Software and Hardware**
  University of Illinois Urbana-Champaign ..... April 2025
  University of Toronto ..... April 2025
  University of Chicago ..... April 2025
  Carnegie Mellon University ..... March 2025
  University of Michigan ..... March 2025
  Harvard ..... March 2025
  UT Austin ..... Feb 2025
  NYU ..... Feb 2025
  UC Berkeley ..... Feb 2025
  Columbia ..... Feb 2025
  Cornell (Ithaca) ..... Feb 2025
  Cornell Tech ..... Feb 2025
  Purdue University ..... Feb 2025
  UC Santa Cruz ..... Jan 2025
- **Performance Clarity for Systems Software and Hardware**
  Carnegie Mellon University ..... Oct 2024
  Systems Research at Google ..... Sep 2024
  Dagstuhl on Programmable Host Networking ..... July 2024
  UT Austin ..... May 2024
- **Automatically Reasoning About How Systems Code Uses the CPU Cache**
  Linux Plumbers Conference (LPC) ..... Sep 2024
  Symposium on Operating Systems Design and Implementation (OSDI) ..... July 2024
- **Achieving Microsecond-Scale Tail Latency Efficiently with Approximate Optimal Scheduling**
  Symposium on Operating Systems Principles (SOSP) ..... Nov 2023
- **The Case for Performance Interfaces for Hardware Accelerators**
  Workshop on Hot Topics in Operating Systems (HotOS) ..... June 2023
- **Performance Interfaces for Network Functions**
  Systems Research at Google ..... Oct 2022
  UC Berkeley ..... Sep 2022
  Harvard ..... June 2022
  Symposium on Networked Systems Design and Implementation (NSDI) ..... April 2022
- **Performance Contracts for Network Functions**
  University of Michigan ..... Nov 2019
  Symposium on Networked Systems Design and Implementation (NSDI) ..... Feb 2019
  ETH Zurich ..... Feb 2019
  Imperial College London ..... Feb 2019
  Cambridge ..... Feb 2019