

Hybrid BSC RS: Python Performance Matters

Objectives

Abstract: It's 2022. Moore's Law and Dennard scaling have run out of steam, making it harder than ever to achieve high performance - especially in Python. This talk first explains in detail the unique challenges that Python poses to programmers. It then presents Scalene, a novel high-performance CPU, GPU and memory profiler for Python that does many things that past Python profilers do not and cannot do. Scalene both runs orders of magnitude faster than other profilers while delivering more accurate and more actionable information that's especially valuable to Python programmers.

Short bio: Emery Berger is a Professor of Computer Sciences at the University of Massachusetts Amherst, the flagship campus of the UMass system. Professor Berger and his collaborators have built numerous widely adopted software systems including Hoard, a fast and scalable memory manager that accelerates multithreaded applications (on which the Mac OS X memory manager is based); DieHard/DieHarder, error-avoiding and secure memory managers that influenced Windows, and Coz, a "causal profiler" that ships with modern Linux distros. He is also the developer and maintainer of CSrankings.org. His honors include an NSF CAREER Award, Most Influential Paper Awards at OOPSLA, at PLDI, and ASPLOS; five CACM Research Highlights, and Best Paper Awards at FAST, OOPSLA, and SOSP; he is an ACM Fellow. Professor Berger served six years as an elected member of the SIGPLAN Executive Committee; a decade as Associate Editor of TOPLAS; he was Program Chair for PLDI 2016 and co-Program Chair of ASPLOS 2021.

Speakers

Speaker: Emery Berger, Professor, University of Massachusetts Amherst

Host: German Llorca, Performance Tools Established Researcher, CS

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