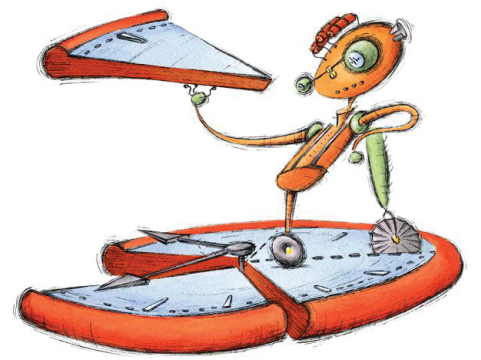
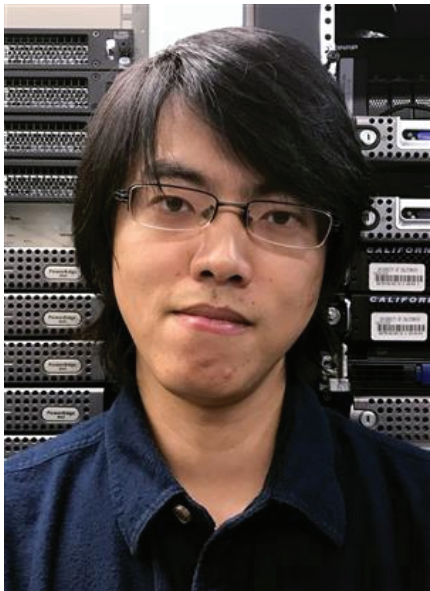


SDI Seminar



Thursday, Nov. 21, 2024
12:00 - 1:00 pm
NSH 3305

Software Reliability in Emerging Cloud Computing Paradigms



Tianyin Xu
University of Illinois
Urbana-Champaign

Tianyin Xu is an Assistant Professor of Computer Science at the University of Illinois at Urbana-Champaign (UIUC). His research focuses on building reliable computer systems that empower next-generation cloud and datacenter computing. He has been on the UIUC List of Teachers Ranked as Excellent eight times. His work receives Jay Lepreau Best Paper Awards at OSDI 2024 and 2016, a Best Paper Award at ASPLOS 2020, two SIGSOFT Distinguished Paper Awards at ISSTA 2021 and FSE 2021, a Gilles Muller Best Artifact Award at EuroSys 2023, and a CACM Research Highlight. He is also a recipient of the C.W. Gear Outstanding Junior Faculty Award, a Dean's Award for Excellence in Research, NSF CAREER Award, an Intel Rising Star Faculty Award, and a Facebook Distributed Systems Research Award.

Cloud system reliability has been a grand challenge in the past decade due to prevalent, inevitable hardware faults, software bugs, and misconfigurations. Emerging computing paradigms such as microservices and serverless computing further expand reliability challenges by significantly increasing the complexity of system interactions and dependencies, with new failure domains. In this talk, I will present our work on improving the reliability of cloud infrastructure systems such as Kubernetes and cloud-native applications running atop them via software testing, model checking, and formal verification. Specifically, I will present push-button testing techniques for systematically checking safety and liveness properties of existing system components and discuss the promises of building new components with formally verified correctness properties towards a vision of truly reliable cloud infrastructures and systems.



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Find the SDI Calendar here.

VISITOR HOST: Dimitrios Skarlatos <dskarlat@cs.cmu.edu>



SDI QUESTIONS:

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