

## **Pythia: A just-in-time instrumentation framework for debugging distributed systems**

### **Abstract**

Diagnosing problems in distributed systems is difficult. Today, typical approaches involve wasteful, time-consuming iterative cycles of manual instrumentation to localize the problem and provide visibility into it. This work describes Pythia, an automated approach to enabling instrumentation in exactly the right locations to provide visibility into a newly observed problem. Pythia utilizes the insight that localizing the source of variation among work that is expected to perform similarly provides insight into where additional instrumentation is needed. Pythia builds on workflow-centric tracing, an increasingly commonly used technique for capturing all of the work done within and among the components of a distributed system to service user requests.

### **Presenters**

Lily Sturmman is a Master's student in software engineering at Harvard University Extension School and a student intern at MOC, where she is working with the tracing team on dynamic instrumentation of distributed systems. Her interests include systems programming, open source software, and technologies that promote people's autonomy over their systems and data. She is excited to be part of the MOC team.

Shuwen “Jethro” Sun is currently a research assistant within MOC. My research interests lie in networking and distributed systems, more specifically, I focus on understanding the behaviors of distributed systems.