Thanumalayan Sankaranarayana Pillai

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Education

PhD in Computer Science, University of Wisconsin-Madison. 2016
Advisors: Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau.

Masters in Computer Science, University of Wisconsin-Madison. 2011

Bachelor of Computer Science and Engineering, College of Engineering, Guindy, Chennai, India. 2009

Work Experience

Senior Software Engineer, Google Inc, Sunnyvale Mar 2021 - Current
Working in Google Brain on a new distributed platform for machine learning.

Senior Software Engineer, Google Inc, Sunnyvale Sep 2019 - Mar 2021
Working on a new high-performance distributed database.

Software Engineer, Google Inc, Sunnyvale Dec 2016 - Sep 2019
High availability and durability in database clusters.

Software Engineering Intern, Google Inc, NYC Summer 2011

Software Engineering Intern, Google Inc, Mountain View, CA Summer 2010

Conference Publications

Thanumalayan Sankaranarayana Pillai, Ramnatthan Alagappan, Lanyue Lu, Vijay Chidambaram, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Application Crash Consistency and Performance with CCFS", **FAST 2017**. **Best paper award.**

Ramnatthan Alagappan, Aishwarya Ganesan, Yuvraj Patel, **Thanumalayan Sankaranarayana Pillai**, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Correlated Crash Vulnerabilities", **OSDI 2016**.

Lanyue Lu, **Thanumalayan Sankaranarayana Pillai**, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "WiscKey: Separating Keys from Values in SSD-conscious Storage", **FAST 2016**.

Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram, Ramnatthan Alagappan, Samer Al-Kiswany, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau , "All File Systems Are Not Created Equal: On the Complexity of Crafting Crash-Consistent Applications", **OSDI 2014**.

Thanumalayan Sankaranarayana Pillai, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau , "Fractured Processes: Adaptive, Fine-Grained Process Abstractions", **TRIOS 2014**.

Vijay Chidambaram, **Thanumalayan Sankaranarayana Pillai**, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Optimistic Crash Consistency", **SOSP 2013**.

Journal and Invited Publications

Thanumalayan Sankaranarayana Pillai, Ramnatthan Alagappan, Lanyue Lu, Vijay Chidambaram, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Application Crash Consistency and Performance with CCFS", **TOS Sep 2017**. **Invited.**

Lanyue Lu, **Thanumalayan Sankaranarayana Pillai**, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "WiscKey: Separating Keys from Values in SSD-conscious Storage", **TOS March 2017**. **Invited.**

Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram, Ramnatthan Alagappan, Samer Al-Kiswany, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Crash Consistency", **CACM October 2015**. **Invited.**

Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram, Ramnatthan Alagappan, Samer Al-Kiswany, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Crash Consistency: Rethinking the Fundamental Abstractions of the File System", **ACM Queue July 2015**. **Invited.**

Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram, Joo-Young Hwang, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Towards efficient, portable application-level consistency", **ACM SIGOPS OSR Jan 2014**. **Fast-tracked.**

Selected arXiv Submissions

Aakanksha Chowdhery, Sharan Narang, et al., "PaLM: Scaling Language Modeling with Pathways", in Computation and Language. https://arxiv.org/abs/2204.02311.

Patents

"Operating method of storage device and data writing method for writing data into storage device." JooYoung Hwang, Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau, Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram. **US20160132251.** May 2016.

Independent Articles on Research

"Application crash consistency and performance with CCFS." **The Morning Paper.** Mar 2017. `http://blog.acolyer.org/2017/03/15/application-crash-consistency-and-performance-with-ccfs/`

"All File Systems are Not Created Equal: On the Complexity of Crafting Crash Consistent Applications." **The Morning Paper.** Feb 2016. `http://blog.acolyer.org/2016/02/11/fs-not-equal/`

"Files are hard", Dan Luu. Reposted on the **LWN.net (Linux Weekly News)**. December, 2015. `http://lwn.net/Articles/667788/`

Workshop Publications

Ramnatthan Alagappan, Vijay Chidambaram, **Thanumalayan Sankaranarayana Pillai**, Aws Albarghouthi, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Beyond Storage APIs: Provable Semantics for Storage Stacks", **HotOS XV**.

Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram, Joo-Young Hwang, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Towards efficient, portable application-level consistency", **HotDep 2013**.

Thanumalayan Sankaranarayana Pillai, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, "Quarantine: Fault Tolerance for Concurrent Servers with Data-Driven Selective Isolation", **HotPar 2011**.

Thanumalayan S, Vijay Chidambaram, Ranjani Parthasarathi, "Design-space exploration of flash augmented architectures". Student Research Symposium, **HiPC 2008**.

Service

Part of PC for EuroSys, SYSTOR, USENIX ATC	2022
Part of PC for SYSTOR	2021
Reviewer for IEEE Transactions on Knowledge and Data Engineering	2018
External reviewer for FAST	2017
External reviewer for FAST, OSDI	2016
Reviewer for ACM Transactions on Computer Systems	2016

Presentations and Invited Talks

"Application Crash Consistency and Performance with CCFS" at SNIA Storage Developer Conference, 2017. Invited.

"Application Crash Consistency and Performance with CCFS" at USENIX ATC, 2017. Best of the Rest track.

"Application Crash Consistency and Performance with CCFS" at FAST, 2017. Conference presentation.

"How file systems differ, why this affects application-level consistency, and what we can do about it." at the ACM Applicative conference, 2015. Invited.

"All File Systems Are Not Created Equal: On the Complexity of Crafting Crash-Consistent Applications" at OSDI, 2014. Conference presentation.

"Fractured Processes: Adaptive, Fine-Grained Process Abstractions" at TRIOS, 2014. Conference presentation.

"Towards efficient, portable application-level consistency" at HotDep, 2013. Workshop presentation.

"Quarantine: Fault Tolerance for Concurrent Servers with Data-Driven Selective Isolation" at HotPar, 2011. Workshop presentation.

Selected Media Articles

George Anadiotis, "Google sets the bar for AI language models with PaLM", VentureBeat, 2022.