

Curriculum Vitae

January 31, 2024

Gowtham Kaki

1111 Engineering Dr, ECOT 717
Boulder, CO 80309, USA

<https://gowthamk.github.io>
gowtham.kaki@colorado.edu
+1 201 417 1775

❖ Research Interests

Programming Languages, Formal Methods, Distributed Systems, Databases, Software Security, Automated Reasoning, and Neuro-symbolic AI.

❖ Education

PhD — Computer Science

Aug 2019

Purdue University, USA

Thesis: **Automatic Reasoning Techniques for Non-Serializable Data-Intensive Applications**

Advisor: Suresh Jagannathan

Master of Science — Computer Science

May 2016

Purdue University, USA

Bachelor of Engineering (Hons.) — Computer Science

Jul 2009

BITS Pilani, India

❖ Experience

Assistant Professor, University of Colorado - Boulder

Aug 2020 – present

Post-Doctoral Researcher, Purdue University

Jan 2020 – Jul 2020

Visiting Assistant Professor, Purdue University

Aug 2019 – Dec 2019

Research and Teaching Assistant, Purdue University

Aug 2011 – Apr 2018

Research Intern, Microsoft Research, India

May 2014 – Aug 2014, &

Advisor: G Ramalingam

Jun 2015 – Aug 2015

Software Engineer, Yahoo!, India

Jul 2009 – Jul 2011

❖ Major Recognitions

- **Google PhD Fellowship 2018** for exceptional research in Computer Science and related disciplines.
- **Maurice H. Halstead Memorial Award** for outstanding research in Software Engineering, Purdue University, 2019.
- **“30 under 30”** award for outstanding accomplishments by a young alumnus, BITS Alumni Association (BITSAA), 2018.
- Amazon Research Award 2023 For Domain-Specific Solvers for Distributed System Verification (Declined)

❖ Journal Publications

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| | Verifying Indistinguishability of Privacy-Preserving Protocols | Oct 2023 |
| J4 | Kirby Linvill, Gowtham Kaki, and Eric Wustrow
<i>Proceedings of the ACM on Programming Languages (PACMPL), issue OOPSLA 2023</i> | |
| | Historia: Refuting Callback Reachability with Message-History Logics | Oct 2023 |
| J3 | Shawn Meier, Sergio Mover, Gowtham Kaki, and Bor-Yuh Evan Chang
<i>Proceedings of the ACM on Programming Languages (PACMPL), issue OOPSLA 2023</i> | |
| | Mergeable Replicated Data Types | Oct 2019 |
| J2 | Gowtham Kaki, Swarn Priya, KC Sivaramakrishnan, Suresh Jagannathan
<i>Proceedings of the ACM on Programming Languages (PACMPL), issue OOPSLA 2019</i> | |

- J1 **Safe Replication through Bounded Concurrency Verification** Nov 2018
Gowtham Kaki, Kapil Earanky, KC Sivaramakrishnan, Suresh Jagannathan
Proceedings of the ACM on Programming Languages (PACMPL), issue OOPSLA 2018
- J0 **Alone Together: Compositional Reasoning and Inference for Weak Isolation** Jan 2018
Gowtham Kaki, Kartik Nagar, Mahsa Najafzadeh, Suresh Jagannathan
Proceedings of the ACM on Programming Languages (PACMPL), issue POPL 2018
- J-1 **Representation without Taxation: A Uniform, Low-Overhead, and High-Level Interface to Eventually Consistent Key-Value Stores** Mar 2016
KC Sivaramakrishnan, Gowtham Kaki, Suresh Jagannathan
IEEE Data Engineering Bulletin, 39(1): 52 – 64

❖ Conference Publications¹

- C5 **RunTime-Assisted Convergence in Replicated Data Types** June 2022
Gowtham Kaki, Prasanth Prahlanan, Nicholas Lewchenko
International Conference on Programming Language Design and Implementation (PLDI 2022)
- C4 **Version Control Is For Your Data Too** May 2019
Gowtham Kaki, KC Sivaramakrishnan, Suresh Jagannathan
Summit on Advances in Programming Languages (SNAPL 2019)
- C3 **Safe Transferable Regions** Jul 2018
Gowtham Kaki, G Ramalingam
European Conference on Object-Oriented Programming (ECOOP 2018)
- C2 **Declarative Programming over Eventually Consistent Data Stores** Jun 2015
KC Sivaramakrishnan, Gowtham Kaki, Suresh Jagannathan
International Conference on Programming Language Design and Implementation (PLDI 2015)
- C1 **A Relational Framework for Higher-Order Shape Analysis** Sep 2014
Gowtham Kaki, Suresh Jagannathan
International Conference on Functional Programming (ICFP 2014)
- C0 **Novel adaptive scheduling algorithm for computational grid** Jan 2010
Sunita Bansal, Gowtham Kaki, Chittaranjan Hota
Internet Multimedia Services Architecture and Applications (IMSAA'09)

❖ Workshop Publications & Tech Reports

- W5 **Distributed Consensus Algorithms as Replicated State Applications** April 2023
Nicholas Lewchenko and Gowtham Kaki
Principles and Practice of Consistency for Distributed Data (PaPoC 2023)
- W4 **Bolt-On Convergence in Mergeable Replicated Data Types** April 2022
Gowtham Kaki, Prasanth Prahlanan, Nicholas Lewchenko
Principles and Practice of Consistency for Distributed Data (PaPoC 2022)
- W3 **Fine-grained distributed consistency guarantees with effect orchestration** Apr 2018
Kia Rahmani, Gowtham Kaki, Suresh Jagannathan
Principles and Practice of Consistency for Distributed Data (PaPoC 2018)
- W2 **Mergeable Types** Sep 2017
Gowtham Kaki, KC Sivaramakrishnan, Samodya Abeyisiriwardane, Suresh Jagannathan
ML Workshop (ML 2017)

¹Journal publications J2-J4 are also published in the corresponding conference proceedings. They are not repeated.

W1	DaLi : Database as a Library Gowtham Kaki, KC Sivaramakrishnan, Thomas Gazagnaire, Anil Madhavapeddy, Suresh Jagannathan <i>Summit on Advances in Programming Languages (SNAPL 2017)</i> Oral Presentation	May 2017
W0	A Lightweight Symbolic Execution Framework for Ruby-on-Rails Gowtham Kaki <i>PLDI Student Research Competition (PLDI SRC 2016)</i>	Jun 2016
W-1	Safe Memory Regions for Big Data Processing Gowtham Kaki, G Ramalingam, Kapil Vaswani, Dimitrios Vytiniotis <i>Microsoft Tech Report</i>	Jan 2016

❖ Teaching

- CU Boulder
 - Principles of Programming Languages (CSCI3155), Spring'21 & '22, Fall'23
 - **Distributed Systems Verification (CSCI7000)**, Spring'21 & '24
 - **Foundations of Programming Languages (CSCI5535)**, Fall'21
 - **Principles of Functional Programming (CSCI7000)**, Spring'23
- Purdue
 - Software Engineering (CS307), Fall 2019

❖ Research Grants

- Developing AI agents to Support Teaching Staff in Large Programming Classes, CU Boulder IRT seed grant (Co-PI)

❖ Service

- CS Dept., Graduate Committee (GradComm) Member, 2020-2021
- Program Committee (PC) Member: PLDI'23, OOPSLA'23, OOPSLA'22, ML'20
- Referee, TOPLAS 2022
- Artifact Evaluation Committee (AEC) Member: PLDI'16, ICFP'17, ICFP'18, ECOOP'19, and PLDI'19
- Organizer, Purdue PL (PurPL) Reading Group, Oct 2013 – Dec 2016.
- Expert Advisor, **GradRight Inc.**, Oct 2018 – Aug 2019
- Student Volunteer, PLDI'16