

# Curriculum Vitae

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Gowtham Kaki

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## ❖ Research Focus

Automatic Reasoning for Data-Intensive Application Safety.

## ❖ 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

Google Research Fellow, Purdue University

May 2018 – Jul 2019

Research Assistant, Purdue University

Jun 2013 – Apr 2018

Advisor: Suresh Jagannathan

Teaching Assistant, Purdue University

Aug 2012 – Dec 2012

Introduction to Programming in C (CS240)

Jan 2013 – May 2013

Programming Languages (CS565)

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.

## ❖ Journal Publications

**Mergeable Replicated Data Types**

Oct 2018

J4

Gowtham Kaki, Swarn Priya, KC Sivaramakrishnan, Suresh Jagannathan  
*Proceedings of the ACM on Programming Languages (PACMPL)*, issue OOPSLA 2019

**Safe Replication through Bounded Concurrency Verification**

Nov 2018

J3

Gowtham Kaki, Kapil Earanky, KC Sivaramakrishnan, Suresh Jagannathan  
*Proceedings of the ACM on Programming Languages (PACMPL)*, issue OOPSLA 2018

J2 **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*

J1 **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 Publications<sup>1</sup>

C5 **Version Control Is For Your Data Too** May 2019  
Gowtham Kaki, KC Sivaramakrishnan, Suresh Jagannathan  
*Summit on Advances in Programming Languages (SNAPL 2019)*

C4 **Safe Transferable Regions** Jul 2018  
Gowtham Kaki, G Ramalingam  
*European Conference on Object-Oriented Programming (ECOOP 2018)*

C3 **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)*

C2 **A Relational Framework for Higher-Order Shape Analysis** Sep 2014  
Gowtham Kaki, Suresh Jagannathan  
*International Conference on Functional Programming (ICFP 2014)*

C1 **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 **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)*

W4 **Mergeable Types** Sep 2017  
Gowtham Kaki, KC Sivaramakrishnan, Samodya Abeysiriwardane, Suresh Jagannathan  
*ML Workshop (ML 2017)*

W3 **DaLi : Database as a Library** May 2017  
Gowtham Kaki, KC Sivaramakrishnan, Thomas Gazagnaire, Anil Madhavapeddy, Suresh Jagannathan  
*Summit on Advances in Programming Languages (SNAPL 2017)*  
**Oral Presentation**

W2 **A Lightweight Symbolic Execution Framework for Ruby-on-Rails** Jun 2016  
Gowtham Kaki  
*PLDI Student Research Competition (PLDI SRC 2016)*

W1 **Safe Memory Regions for Big Data Processing** Jan 2016  
Gowtham Kaki, G Ramalingam, Kapil Vaswani, Dimitrios Vytiniotis  
*Microsoft Tech Report*

## ❖ Teaching

- Course Instruction at Purdue University

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

- Software Engineering (CS307), Fall 2019
- Teaching Assistantship at Purdue University
  - Introduction to Programming in C (CS240), Aug 2012 – Dec 2012.
  - Programming Languages (CS565), Jan 2013 – May 2013.

## ❖ Talks

### Mergeable Replicated Data Types

OOPSLA 2019, Athens

*Oct 2019*

Shonan Seminar on Programming Language Support for Data-Intensive Applications, Japan

*Jul 2019*

### Automatic Reasoning in the Absence of Serializability

*Jul 2019*

Phd Defense, Purdue University

### Version Control Is For Your Data Too

*May 2019*

SNAPL 2019, Brown University

### Safe Replication through Bounded Concurrency Verification

OOPSLA 2018, Boston

*Nov 2018*

Purdue PL (PurPL) Seminar

*Nov 2018*

Mid-West PL Summit, University of Wisconsin, Madison

*Oct 2018*

### Safe Transferable Regions

*Jul 2018*

ECOOP 2018, Amsterdam

### Alone Together: Compositional Reasoning and Inference under Weak Isolation

POPL 2018, Los Angeles

*Jan 2018*

Mid-West PL Summit, Indiana University, Bloomington

*Dec 2017*

### Mergeable Types

ML Workshop 2017, Oxford, UK

*Sep 2017*

Purdue PL (PurPL) Seminar

*Aug 2017*

### Quelea: Declarative Programming under Eventual Consistency

PLDI 2015, Portland

*Jun 2015*

Mid-West Verification, University of Illinois, Urbana-Champaign

*Oct 2015*

Microsoft Research India Intern Day, Bangalore

*Jul 2015*

### Catalyst: A Relational Framework for Higher-Order Shape Analysis

Dagstuhl Seminar on Verification Tools for Functional Programs, Dagstuhl, Germany

*Apr 2016*

Mid-West Verification, University of Missouri, Columbia

*Oct 2014*

ICFP 2014, Gothenburg, Sweden

*Sep 2014*

## ❖ Service

- Program Committee (PC) Member: ML'20
- 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

## ❖ Travel Grants & Scholarships

- ACM SIGPLAN PAC funding: ICFP'14 and OOPSLA'18.
- ECOOP travel funding, 2018.
- ACM SIGPLAN PLMW scholarship, 2014.
- BITS Pilani merit-cum-need scholarship, Aug 2005 – Dec 2008.

## ❖ References

### **Suresh Jagannathan**

Samuel D. Conte Professor of Computer Science  
Department of Computer Science  
Purdue University  
305 N University St  
West Lafayette, IN 47906, USA  
[suresh@cs.purdue.edu](mailto:suresh@cs.purdue.edu)

### **G Ramalingam**

Principal Researcher & ACM Fellow  
Programming Languages and Tools Group  
Microsoft Research India  
Vigyan, No. 9, Lavelle Road  
Bengaluru, 560001, India  
[grama@microsoft.com](mailto:grama@microsoft.com)

### **Ranjit Jhala**

Professor  
Department of Computer Science & Engineering  
University of California, San Diego  
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### **Tiark Rompf**

Assistant Professor  
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### **KC Sivaramakrishnan**

Assistant Professor  
Department of Computer Science & Engineering  
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