

## Kartik Nagar

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### PERSONAL PARTICULARS

Assistant Professor,  
Department of Computer Science and Engineering,  
Indian Institute of Technology Madras,  
Chennai-600036, India.  
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### EMPLOYMENT

**IIT Madras**  
Assistant Professor

**Jan 2020 -**

**Purdue University**  
Postdoctoral Research Associate  
Mentor : Suresh Jagannathan

**Aug 2016 - Dec 2019**

### EDUCATION

**Indian Institute of Science, Bangalore**  
**Ph.D.** Computer Science, Department of CSA, IISc.

**Aug 2012 - June 2016**

- Thesis : Precise Analysis of Private and Shared caches for tight WCET Estimates.
- Advisor : Y.N. Srikant

**Indian Institute of Science, Bangalore**  
**M.E.** Computer Science, Department of CSA, IISc.

**Aug 2010 - July 2012**

- CGPA : 7.4/8
- Thesis : Cache analysis for multi-level data caches.
- Advisor : Y.N. Srikant

**Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar**  
**B.Tech.** Information and Communication Technology, DAIICT.

**Aug 2006 - July 2010**

- CGPA : 9.94/10

### RESEARCH INTERESTS

Formal Verification, Program Analysis, Programming Languages, Concurrency, Distributed Systems, Real-time Systems.

### PUBLICATIONS Peer-reviewed Journal Papers

- **[OOPSLA]** CLOTHO: Directed Test Generation for Weakly Consistent Database Systems.  
Kia Rahmani, Kartik Nagar, Benjamin Delaware and Suresh Jagannathan. PACMPL 3(OOPSLA), 2019.
- **[POPL]** Alone Together: Compositional Reasoning and Inference for Weak Isolation.  
Gowtham Kaki, Kartik Nagar, Mahsa Najafzadeh and Suresh Jagannathan. PACMPL 2(POPL), 2018.
- **[TECS]** Refining Cache Behaviour Prediction using Cache Miss Paths.  
Kartik Nagar and Y.N. Srikant.  
ACM Transactions on Embedded Computing Systems 16(4), 2017

- **[TECS]** Fast and Precise Worst Case Interference Placement for Shared Cache Analysis.  
Kartik Nagar and Y.N. Srikant.  
ACM Transactions on Embedded Computing Systems 15(3), 2016.

#### Peer-reviewed Conference Papers

- **[CAV]** Automated Parametrized Verification of CRDTs.  
Kartik Nagar and Suresh Jagannathan.  
International Conference on Computer-Aided Verification, 2019.
- **[CONCUR]** Automated Detection of Serializability Violations under Weak Consistency.  
Kartik Nagar and Suresh Jagannathan.  
International Conference on Concurrency Theory, 2018.
- **[VMCAI]** Path-sensitive Cache Analysis using Cache Miss Paths.  
Kartik Nagar and Y.N. Srikant.  
International Conference on Verification, Model Checking, and Abstract Interpretation, 2015.
- **[RTAS]** Precise Shared Cache Analysis using Optimal Interference Placement.  
Kartik Nagar and Y.N. Srikant.  
IEEE Real Time and Embedded Technology and Applications Symposium, 2014.
- **[MEMOCODE]** Interdependent Cache Analyses for better precision and safety.  
Kartik Nagar and Y.N. Srikant.  
ACM/IEEE International Conference on Formal Methods and Models for Code-sign, 2012.

#### PROFESSIONAL ACTIVITIES

- PC : WCET (International Workshop on Worst Case Execution Time Analysis) 2017, 2018, 2019
- Reviewer : ESOP 18, POPL 19, PLDI 19, JACM, JSA

#### TALKS

- *Automated Parameterized Verification of CRDTs.*, International Conference on Computer-Aided Verification (CAV) 2019, New York, USA, July 2019.
- *Automated Detection of Serializability Violations under Weak Consistency.*, International Conference on Concurrency Theory (CONCUR) 2018, Beijing, China, September 2018.
- *Path sensitive cache analysis using cache miss paths*, International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI) 2015, Mumbai, India, January 2015.
- *Precise shared cache analysis using optimal interference placement*, IEEE Real Time and Embedded Technology and Applications Symposium (RTAS), Berlin, Germany, April 2014.
- *A Comprehensive cache analysis for multi-level caches*, IMPECS-CSA Workshop on Program Analysis, Indian Institute of Science, Bangalore, September 2012.
- *Interdependent cache analyses for better precision and safety*, ACM/IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE) Arlington, Virginia, USA, July 2012.

#### RESEARCH VISITS

- Saarland University, Germany (hosted by Jan Reineke and Reinhard Wilhelm) Sep-Oct 2015

**AWARDS AND HONORS**

- Awarded Microsoft Research India PhD fellowship, 2013.
- Secured an all India rank of 19 in Graduate Aptitude Test in Engineering (GATE) 2010.
- Gold medal for best academic performance in B.Tech., DAIICT, Gandhinagar, 2011.

**SKILLS**

Languages : English, Gujarati (Native), Hindi.

Programming : C, Java, C++, Z3, LLVM,  $\text{\LaTeX}$ , Shell programming.