

## Kunal Korgaonkar, Postdoctoral Research Fellow, Technion, Israel

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### Area of Interest

My current focus is on building novel data-centric architectures and software systems by leveraging emerging memory and storage technologies. My expertise is in computer architecture and systems (in general).

### Education

- **University of California San Diego (UCSD)**, California, USA 2012 - 2019  
Doctor of Philosophy (PhD), Computer Science and Engineering  
Building Scalable Architectures using Emerging Memory Technologies [Advisor: Prof. Steven Swanson].
- **Indian Institute of Technology Madras (IITM)**, Chennai, India 2008 - 2010  
Masters of Science (MS), Computer Science and Engineering  
Architectural Support for Shared-data Synchronization [Advisor: Prof. V. Kamakoti]

### Publications

- **K. Korgaonkar**, J. Izraelevitz, J. Zhao, S. Swanson; Vorpai: Vector Clock-Inspired Ordering For Large Persistent Memory Systems; **PODC 2019**.
- **K. Korgaonkar**, I. Bhati, H. Liu, J. Gaur, S. Manipatruni, S. Subramoney, T. Karnik, S. Swanson, I. A. Young, H. Wang; To Cache Or To Bypass? A Fine Balance For Emerging Mem. Tech. Era; **NVMW 2019**.
- **K. Korgaonkar**, R. Ronen, A. Chattopadhyay, S. Kvatinsky; The Bitlet Model: Defining a Litmus Test for the Bitwise Processing-in-Memory Paradigm; **CATC 2019**.
- **K. Korgaonkar**, I. Bhati, H. Liu, J. Gaur, S. Manipatruni, S. Subramoney, T. Karnik, S. Swanson, I. A. Young, H. Wang; Density Tradeoffs of NVM as a Replacement for SRAM LLCs; **ISCA 2018**.
- **K. Korgaonkar**, Shelby Thomas; Granular Computing: Blending Terabit Network with Terabyte Main Memories; **ARM Research 2018**
- S. Patil, Y. Kim, **K. Korgaonkar**, I. Awwal, T. Rosing; Characterization of User's Behavior Variations for Design of Replayable Mobile Workloads; **MobiCase 2015**.
- A. Gautham, **K. Korgaonkar**, Patanjali S., S. Balachandran and V. Kamakoti; Implications of Shared-Data Synchronization Techniques on Multi-Core Energy Efficiency; **HotPower 2012**.
- **K. Korgaonkar**, Kashyap G. and V. Kamakoti; Size-proportional signature sharing for transactional memory systems; **FASPP 2012**.
- **K. Korgaonkar**, P. Jain, D. Tomar, K. Garimella and V. Kamakoti; Reconstructing hardware transactional memory for workload optimized systems; **APPT 2011**
- **K. Korgaonkar** and V. Kamakoti; Thread synchronization: from mutual exclusion to transactional memory; **IETE Review 2011**
- **K. Korgaonkar**, G. Kurian, M. Gautam and V. Kamakoti; HTM Design Spaces: Complete Decoupling from Caches; **SIGOPS OSR 2009**.

### Research Positions

- **Technion, Postdoc and Visiting Fellow**, Technion Computer Engg. Center, Israel June 2018 onwards  
Algorithmic and architectural implications of fusing compute and memory.  
[Collaborators: Shahar Kvatinsky, Mark Silberstein, Avi Mendelson, Idit Keider]
- **Intel Labs, Research Intern**, Micro-architecture Research, Bangalore Summer, Fall 2016  
Revisiting on-chip caching in wake of new memory technologies.  
[Mentors: Sreenivas Subramoney, Jayesh Gaur, Ishwar Bhati, Tanay Karnik]
- **AMD Research, Research Intern**, Exascale Team, Austin Summer 2015  
Heterogeneous system memory coherence and new memory interfaces.  
[Mentors: Brad Beckmann, Sooraj Puthoor, David Roberts ]
- **IBM Research, Hardware Architect**, Network Processing Team, Bangalore 2010 - 2012  
Architectural exploration and performance analysis of on-chip accelerators.  
[Collaborators: Shivkumar Kalyanaraman, Malolan Chetlur, Ravi Kokku]

### Teaching Positions

- Teaching Assistant for Computer Architecture Theory and Lab (UC San Diego, CSE141/141L) (5 quarters)
- Teaching Assistant for Embedded Systems (UC San Diego, CSE 237A and WES 237B) (2 quarters)
- Teaching Assistant for Computer Architecture and Verification (IIT Madras, CSE in 2009, 2010) (2 semesters)

### Academic Achievements

- **In top 100 state-wide** for State School Board
- **In top 20 state-wide** in Physics, Chemistry, Math (for college admission)
- **In top 250 country-wide** in Computer Science (for admission to graduate studies in IITs/IISC)