

# GURUNATH KADAM

- [gakadam@email.wm.edu](mailto:gakadam@email.wm.edu) •
- <https://gakadam.github.io/> •

---

## RESEARCH INTERESTS

CPU/GPU Microarchitecture. Hardware Security and Reliability. Application-specific HW Accelerators.

---

## EDUCATION

### The College of William and Mary

Ph.D. candidate in Computer Science. **Advisor:** Prof. Adwait Jog

Williamsburg, VA, USA

Expected May 2021.

**Dissertation Title:** “Low Overhead Techniques for Secure and Reliable GPU Computing”

### Technical University of Darmstadt

M.Sc. in Information & Communication Engineering.

Darmstadt, Germany

Nov 2012.

**Thesis Title:** “Wireless NoC based on XHiNoC”

### University of Mumbai

B.E. in Electrical Engineering.

Mumbai, India

May 2006.

---

## PUBLICATIONS

### Conference Publications:

**[HPCA 2020]** *Gurunath Kadam*, Danfeng Zhang, Adwait Jog. *BCoal: Bucketing-based Memory Coalescing for Efficient and Secure GPUs*. In the Proceedings of The 26<sup>th</sup> International Symposium on High-Performance Computer Architecture, San Diego, USA, February, 2020.

**[HPCA 2018]** *Gurunath Kadam*, Danfeng Zhang, Adwait Jog. *RCoal: Mitigating GPU Timing Attack via Subwarp-based Randomized Coalescing Techniques*. In the Proceedings of The 24<sup>th</sup> International Symposium on High-Performance Computer Architecture, Vienna, Austria, February, 2018.

**[ITC 2016]** *Gurunath Kadam*, Markus Rudack, Krishnendu Chakrabarty, Juergen Alt. *Supply-voltage optimization to account for process variations in high-volume manufacturing testing*. In the Proceedings of The 47<sup>th</sup> IEEE International Test Conference, Forth Worth, USA, 2016.

---

## RESEARCH EXPERIENCE

### The College of William and Mary

Graduate Researcher in Computer Science Department.

Williamsburg, VA, USA

Aug 2016 - present.

- Investigating HW-based reliability measures for the Machine Learning Workloads.
- Investigating the memory faults and their impact on the reliable operation of GPUs.
- Implemented HW-based measures against a proven timing channel attack on GPUs.

### Intel Labs

Graduate Research Intern.

Hillsboro, OR, USA

Aug 2018 - Dec 2018.

- Investigated the security vulnerabilities in multi-tenancy on FPGAs.
- Built a tool to visualize the FPGA resource utilization of an application bitstream.

### Intel Deutschland GmbH

Graduate Intern Technical in Design-for-Test.

Munich, Germany

Mar 2013 - July 2016.

- Implemented an innovative methodology for determining voltage guard-band for product testing.
- Statistically modelled the on-wafer process variations using Design of Experiments (DoE).
- Validated the methodology by testing the silicon chips on ATE and performing scan diagnosis.

---

## WORK EXPERIENCE

### Reliance Ports and Terminals Ltd.

Navi Mumbai, India

Design Engineer: Electrical.

Jan 2008 - Sept 2010.

- Modelled and analyzed Electrical System using ETAP for relay setting and coordination.
- Prepared electrical layouts, MTO sheets, load summaries, PCC and MCC schedules.

### Semikron Electronics Pvt. Ltd.

Navi Mumbai, India.

Trainee Design Engineer: Power Electronics.

Nov 2006 - Dec 2007.

- Designed power converter stacks.
- Performed converter stack assembly, quality assurance and stack testing.

---

## AWARDS, GRANTS and HONORS

- **Graduate Studies and Research Recruitment Fellowship**, The College of William and Mary, 2016-18.
- **Graudate Assistantship**, The College of William and Mary, 2016-17.
- **Student Travel Grant**, MICRO 2017, HPCA 2018, HPCA 2019, DSN 2019.

---

## SKILLS

**Programming Languages:** C/C++, CUDA, Python, Assembly (x86/RISC-V), LaTeX.

**Libraries/Frameworks:** PyTorch, NVBit/SASSIFI/CUPTI.

**Build tools:** CMake, Make.

**HDLs:** SystemVerilog, SystemC, Verilator, Chiesel.

**Analog Simulation:** Spectre/MDL, HSPICE.

**Software:** Intel Quartus Prime, Cadence ADE, Synopsys DC, Matlab, Keil uVision.

---

## PROFESSIONAL MEMBERSHIPS

**IEEE:** Graduate Student Member (# 94627736).

---

## REFERENCES

Available upon request.