Armin Vakil

Computer Science & Engineering Department, University Park, PA 16802
arminvakil@{gmail.com, psu.edu}

EDUCATION

Pennsylvania State University, University Park, PA — Aug 2018 – Now

- Ph.D. Student in Computer Science & Engineering Department
  - Advisor: Prof. Mahmut Kandemir
  - GPA: 4/4 (up to now)
  - **Relevant Graduate Courses**: Computer Architecture, Data Structures & Algorithms, Binary-level Analysis, Language-based Security, Operating Systems, Emerging Technologies

Sharif University Of Technology, Tehran, Iran — Sep 2013 – Jul 2018

- Bachelor of Science (B.S.) in Computer Engineering - Hardware
  - Thesis: Cache Replacement Policy Based on Expected Hit Count
    Advisor: Prof. Hamid Sarbazi-Azad
  - Average: 16.48 / 20

RESEARCH INTERESTS

- Computer Architecture
- Memory Systems
- Persistent Memory
- In-memory computation
- Distributed systems

PUBLICATIONS

- Bakhshalipour, M., Faraji, A., **Vakil-Ghahani, S.A.**, Samandi, F., Lotfi-Kamran, P., and Sarbazi-Azad, H. (2019) *Reducing Writebacks Through In-Cache Displacement.* ACM Transactions on Design Automation of Electronic Systems (TODAES).
- **Vakil-Ghahani, S.A.**, Mahdizadeh-Shahri, S., Bakhshalipour, M., Lotfi-Kamran, P., and Sarbazi-Azad, H. (2018). *Making Belady-Inspired Replacement Policies More Effective Using Expected Hit Count.* arXiv preprint arXiv.
- **Vakil-Ghahani, A.**, Mahdizadeh-Shahri, S., Lotfi-Namin, M. R., Bakhshalipour, M., Lotfi-Kamran, P., and Sarbazi-Azad, H. (2017). *Cache Replacement Policy Based on Expected Hit Count.* IEEE Computer Architecture Letters (CAL).

WORK EXPERIENCE

- System Developer, **I-Cliqq** — Jan 2018 – Aug 2018
  - Designing Embroidery Software
- System Developer, **Viratech Sharif**, Tehran, Iran — Sep 2015 – Sep 2016
  - Traffic Simulator (C++) - High Speed Network Simulator
  - Add tunneling protocol between link, internet, and transport layer

RESEARCH EXPERIENCE

- **Pennsylvania State University**
  - ◇ **Memory Refreshes** - DRAM memories need refresh operations because they lost their content over time. The overhead of these refreshes increases with larger DRAM memories. My research focus is to reduce memory refreshes with the help from operating system.
  - ◇ **Persistent Memory** - Exploring persistent memory programming challenges and opportunities.

TEACHING EXPERIENCE

- Teaching Assistant at Pennsylvania State University
  - Computer Organization and Design (CMPEN 331) — Fall 2018, 2019, Spring 2019
- Teaching Assistant at Sharif University of Technology
  - Computer Architecture — Fall 2016, 2017
  - Digital System Design — Spring & Fall 2017
  - Digital Design — Spring 2017
  - Advanced Logic Design — Fall 2016
  - Discrete Structures — Spring 2016
  - Advanced Programming — Fall 2014, 2015
  - Fundamental Of Programming — Spring & Fall 2014
- Teaching Combinatorics, Graph Theory, Algorithm, and Programming — Sep 2013 – Mar 2018
  - National Organization for Development of Exceptional Talents high schools in different cities such as Tehran, Khoramabad, Zahedan, Semnan, and Shahrud
  - Salam YousefAbad, Salam Dibaji, and Mofid high schools

HONORS AND AWARDS

- Qualified for 2nd Cache Replacement Championship (CRC-2)
  - Cache Replacement Policy Based on Expected Hit Count — Jun 2017
- **Silver Medal** in 22nd Iran National Olympiad in Informatics(INOI) — Sep 2012
- **Ranked 10th** in 1st Round of 22nd Iran National Olympiad in Informatics among 10,000 participants — Mar 2012

SKILLS

- Computer Architecture Simulators: gem5, DRAMsim2, Ramulator, SimpleSSD, ChampSim
- Programming Languages: C/C++, Verilog, Python, R, Shell, MIPS
- Tools & Frameworks: Qemu, Pin, DynamoRIO, LLVM, Google Protobuf, Qt
- Operating Systems: Ubuntu(Native), Windows
- Type Setting: LaTeX, Microsoft Office

EXTRA-CURRICULAR ACTIVITY

- **Sharif AI Challenge** (Contest Organizer) — Jan 2015 – Jan 2017
  - Student Programming Contest
  - C++ Client
- **1st Gateuino Contest** (Contest Organizer) — May 2016
  - L1D-Prefetching Contest
- **Trax Game** — Apr 2016
  - Two player game based on Verilog
- **Judge** — Mar 2015
  - Designing and implementing a judge system for evaluating codes
- **Suduko** — Jan 2013
  - Graphical Suduko game based on GTK

COURSE PROJECTS

- **NoC** — Jan 2016
  - 3D Mesh Network on Chip based on Verilog
- **Plants vs Zombies** — Jul 2014
  - Based on Qt Creator
- **Billiard** — Jan 2014
  - Graphical Billiard game based on GTK

LANGUAGES

- Persian: Native
- English: Fluent