Shaizeen Aga

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Education

- **PhD.** Computer Science**, University of Michigan, Ann Arbor** Expected 2017**.**
- **Master of Science**, Computer Science and Engineering, **University of Michigan, Ann Arbor** Expected 2013**.**
- **Bachelor of Technology**, Information Technology, **College of Engineering**, **Pune, India** May 2009**.**
  - **Topped (2nd)** Information Technology Department

Research and Academic Interests

Parallel Computer Architecture and parallel computing.

Work Experience

- ***Graduate Student Research Assistant*** January 2012 - Present

I am working with **Prof. Satish Narayanasamy**. My work involves different facets of parallel computer architecture and parallel computing. I am looking at ways to make parallel computing more accessible by designing hardware which is more intuitive to programmers.

An effort in this regard is to guarantee Sequential Consistency (SC) at both compiler and hardware level; for SC is the most intuitive memory model for programmers targeting multi-core machines. By leveraging on-chip directory in a coherence protocol, we take store miss latency out of the critical path and we have shown that the overhead of SC is minimal as compared to other relaxed memory models.

- ***Intern, Pacific Northwest National Laboratory*** June 2012- August 2012

I was working with the **High Performance Computing** group at Pacific Northwest National Labs. We are looking at improving Cilk multithreaded runtime system to exploit parallelism present in applications more aggressively by harnessing optimistic concurrency to overcome the limitations of over-constrained Cilk scheduler.

- ***Senior Technology Associate, Morgan Stanley*** January 2011 - July 2011
- ***Technology Associate, Morgan Stanley*** January 2010 - December 2011

I was a part of Firm Market Risk Data Warehousing team here. My work primarily involved design and development of a Data Warehouse catering to regulatory (FED/FSA) requirement & analytical needs of the risk managers, optimizing queries and building analytical (OLAP) cubes for reporting purposes. I was a key contributor to a major re-structuring project for the Regulatory Capital Subject Area to optimize the data transformation and load process (reduced the load cycle by 65%). Towards the later period acted as a mentor to a new undergraduate joinee to the team and was involved in hiring initiatives as well.

- ***Intern, NVIDIA Graphics Pvt Ltd*** June 2008 - March 2009

  I worked here on NVIDIA's parallel computing platform CUDA. We were a group of 3 interns and we ported a True motion estimation algorithm on the CUDA platform. The challenges involved here were, understanding true motion estimation and CUDA architecture and doing a literature survey to pick an algorithm which could be efficiently ported onto the CUDA platform.

Projects

- ***Speculatively relaxing memory model constraints by dynamic classification of cache blocks.***

  Using dynamic classification of cache blocks, we relaxed memory consistency model constraints to improve performance of Sequentially Consistent hardware. The project earned **top grade in Winter 2012 class of Parallel Computer Architecture** at University of Michigan.

- ***Design and implementation of P6 microarchitecture based core in Verilog.***

  Implemented the memory interface of the core (load queue, store queue, post retirement store buffer) and host of other components like Reorder Buffer, Instruction Buffer. Designed and implemented an **Adaptive Instruction Prefetcher** which gained us significant performance benefits and the project earned **top grade in Fall 2011 class of Computer Architecture** at University of Michigan.

- ***Parallel implementation of Maximum likelihood method of Phylogenetic Tree construction algorithm using Microsoft's Task Parallel Library.***

  Phylogenetic tree construction algorithms are crucial in the field of drug design. Using Microsoft's Task Parallel library we improved on the performance of computationally intensive Maximum Likelihood method of Phylogenetic tree construction. This project won **Parallel Computing Award** at **Microsoft's Imagine Cup 2009**, a worldwide technical student competition.

Achievements

- Won **Parallel Computing Award** at **Imagine Cup 2009** (a worldwide student technical competition) organized by Microsoft.
- Recipient of **K.C. Mahindra Scholarship** for Indian students pursuing graduate studies abroad.
- Recipient of **Bharat Petroleum Corporation Ltd**. Scholarship for post graduate students.
- **Microsoft Student Partner** at College of Engineering, Pune, India.
- Recipient of **Dhirubhai Ambani Scholarship** for undergraduate studies.
- **State topper in Physics** at Higher Secondary level with 100% grade.
- School and High School Topper.
- Winner of elocution competitions at school and national level.
- Certificado Basico and Intermedio in Spanish.

Activities

- **Member** and **Co-ordinator** of **Debate Club** at College of Engineering Pune, India.
- **Volunteer** with **Akanksha**; a **non-profit organization** working for **education of under-privileged kids**.