Anshul Purohit

Personal Data

Place	Madison
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Education

2015-2017 Masters of Science in Computer Sciences
University of Wisconsin-Madison, Madison WI, USA

2011-2015 Bachelors of Technology in Computer Science and Engineering
Indian Institute of Technology Bombay, Mumbai, India
Pursuing Honors in **Computer Science** and Minor in **Management**
Cumulative GPA: 8.76/10.0

Experience

Fall 2015 *Research Assistant*
Department of Computer Sciences , UW Madison

- Currently working on GPU kernel code verification problem for CUDA and OpenCL frameworks. Working on techniques to argue/prove that GPU code is equivalent to its corresponding sequential code.

Summer 2014 *Bing, Microsoft India Development Center*
Software Development Engineer Intern

- Added features to the Bing Local results tool Dailymetrics, like searching, email notifications, authentication and check-in issues.
- Worked on multiple Microsoft technologies like SQL Server, Azure Cloud Services, ADFS login system, ASP.NET framework and MVC web applications.
- Focused on end to end development of the multi-tier features in the tool, from database level to final web deployment.

Skills & Interests

Interests	Programming Languages/Verification, Distributed Systems & Artificial Intelligence. Moderately experienced in the areas of Systems, Image Processing and GPU programming.
Skills	Programming: C/C++, C#, Java, Python, Scheme, MIPS Assembly, MATLAB, CUDA C Web: HTML, CSS, JavaScript, JQuery, SQL, ASP.NET

Courses Taken

- **CS Electives**: Advanced Compilers, Distributed systems, Program Verification & Synthesis, Digital Image Processing, Information Retrieval & Parallelizing Compilers

- **CS Core** : Compilers, Operating Systems, Artifical Intelligence, Networks, Architecture, Databases, Algorithms & Data Structures

Projects

Fall 2014-Spring 2015 — Heap Reference Analysis for Concurrent Programs
Undergraduate Thesis with Prof. Uday Khedkar, IIT-Bombay

- Designed an analysis technique for generating heap access information statically for multi-threaded programs.
- This would be useful for checking memory-access safety property of the program at compile time.

Fall 2014 — Power-Performance trade-offs of Networked Applications
RnD Project

- Performed validation of the model to estimate average power consumption of a networked application.
- Designed experiments on a server cluster for modelling power consumption by varying the CPU-core operating frequency(through Linux governors) and CPU utilization.

Spring 2014 — *Artificial Intelligence*
Course Projects

- Implemented a Neural Network to train and classify twitter sentiments.
- A* search algorithm implementation on 8-puzzle problem to find optimal solution to goal.
- Developed syntactic theorem prover for theorems in Hilbert's propositional calculus.

Spring 2014 — *Virtual Memory Management*
OS Course Project

- Implemented a virtual memory manager for a mini-operating system. Designed page-in, page-out operations involving memory, swap space of processes, mechanisms to allocate non-contiguous pages, TLB cache and page replacement policy.

Fall 2013 — *Buffer Overflow Attack*
Computer Architecture Project

- Analysed the activation record of functions in the stack map and used the vulnerability of strcpy such that it writes past the allocated memory of the array.
- Used strcpy to load shellcode and modify the return address to execute the malicious code to kill all the process and restart.

Achievements

- Secured All India Rank 84 out of approximately $1/2$ million candidates in IIT Joint Entrance Examination 2011.
- Part of the IIT Bombay Rubik Club's Guinness and Limca World Record for most number of people solving Rubik's cube at one time in one place (18th March,2012).
- Worked with the National Service Scheme (NSS) team of IIT Bombay. My work involved volunteering in the Computer Literacy Programme.