

# Balaji Dhanasekaran

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## OBJECTIVE

Seeking an internship position that will allow me to apply my knowledge and also acquire a deeper understanding in the area of GPGPUs.

## EDUCATION

### GRADUATE LEVEL

### University of Virginia, 2008 fall

- PhD (in CS) at Department of Computer Science, University of Virginia.
- Cumulative Grade point Average (CGPA) is 4.0/4.0
- Courses
  - Advanced Computer Architecture
  - Compilers
  - Operating System
  - Theory of Computation

- **RESEARCH**

Working on virtualizing heterogeneous processor architectures, under the guidance of Prof. Kim Hazelwood and Prof. Kevin Skadron. The problem we are trying to solve is the absence of a synergy between the various processing units (GPUs, FPGAs, Fixed Function Blocks etc.) in a heterogeneous architecture and the necessity to rewrite the code again and again for each of these units. One of the solutions to this problem would be to come up with a virtual layer over these units. Such a layer will provide portability among these units and will also help increase the energy efficiency and better exploit the parallelism. Currently, I am looking at CUDA, an abstraction layer for NVidia's GPUs, to analyze the primitives offered.

### UNDERGRADUATE LEVEL

### Anna University, 2002 - 2006

- Bachelor of Technology (in Information Technology) at Department of Computer Science and Engineering [DSCE], College of Engineering, Guindy, Anna University, Chennai, India.
- Cumulative Grade point Average (CGPA) is 8.818/10.000
- Courses:
  - Computer Architecture
  - Network Processing and Programming (deals with IXP 1200 and IXP 2400 network processors)
  - OS
  - Data Structures and Algorithms
  - Digital System Design

## SELECTED PROJECTS

- *Implementing NACK filtering on IXP 2400:*

One of the problems in reliable multicasting is NACK implosion. When multiple clients bombard the server with NACKs, the load on the server increases a lot. There is a good chance that many of the clients could have lost the same packet. An efficient solution would be to filter the NACKs for the same packet somewhere in an intermediate node and multicast the packet when it arrives. This is called as NACK filtering. We had implemented this project on INTEL IXA SDK tool kit for INTEL IXP 2400 processor.

- *Search Personalization for BAVANI Search Engine:*

Dept. of CS at Anna University had developed a search engine called BAVANI. This project deals with the personalization of its search results. This project has two modules. The first one deals with the categorization of web pages based on the frequency of key words. Second module deals with the actual personalization by tracking the user's browsing pattern and sorting the search results based on it. It was implemented in JAVA.

- *Online Music Portal*

This involved the construction of website for a hypothetical online music store. This was implemented using J2EE technologies like Servlets and EJB.

- *Design of a multiplier*

This was done as part of the digital logic course. We had designed and simulated a multiplier on a simulator called Circuit Maker.

## WORK EXPERIENCE

**Adobe Systems Inc.**

**2006 June – 2008 July**

- Worked on a product popularly known as "Macromedia Director". It is a multimedia authoring tool, used to create games. One of the features I was working on was "PhysX". PhysX is an Xtra (plug in) which provides physics engine's functionality to the game developers. The game developers can enhance the liveliness of their games using this feature. I was working in a team of 3 which was given the responsibility to integrate the physics engine (AGEIA) to our product. I had a significant role in this feature right from its design to support phases. Apart from this, I have worked on a few UI enhancements for our product and also in internationalization (Unicode compliance) of our product.

## OTHER ACHIEVEMENTS

- Secured an overall average of 93% in Higher Secondary Examinations, March 2002
- Among the top 1% of the students in the State level Professional college entrance examination conducted by Anna University, Chennai, India.

## SKILLS

- Languages Known – C, C++, Java, Cuda
- Environments worked on - Unix, Mac, Windows

**BALAJI DHANASEKARAN**