

**Priyanka Tembey**  
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### ***Research Interests***

Heterogeneous Multicores, OS/Hypervisor structures, Resource allocation policies/Scheduling.

### ***Education***

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#### **Georgia Institute of Technology**

PhD in Computer Science August 2008 – Present

- Member of the Center for Experimental Research in Computer Systems (CERCS).
- Advised by Prof. Dr. Karsten Schwan and Dr Ada Gavrilovska.

MS in Computer Science August 2006 – May 2008

- Specialization in Computer Systems and Networks.

#### **University of Poona, India**

Bachelor's in Computer Science and Engineering August 2002 – May 2006

### ***Research Experience (Georgia Tech)***

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#### **inTune: Inter-Scheduler coordination in heterogeneous multicore platforms. (In submission to Usenix ATC'11)**

Multi-core platforms are moving from small numbers of homogeneous cores toward sets or 'islands' of cores with differing resources and controlled by separate resource managers. Efficient use of such systems, however, requires their resources to be managed in ways that can achieve desired global properties, such as total platform energy usage or utilization, and the ability to deliver certain levels of performance sought by applications.

inTune is an inter-island coordination framework that provides system-level mechanisms for establishing and maintaining global properties for future many-core platforms and applications.

#### **Flexible packet classification engine on Network processors.**

Developed a flexible packet-classification framework for the Intel IXP2400s/IXP2800s and control channels with the host machine for rules manipulation and deployment.

### ***Publications***

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- 1) "A case for coordinated resource management in heterogeneous multicore platforms.", **Priyanka Tembey**, Ada Gavrilovska, Karsten Schwan, WIOSCA 2010, June 2010
- 2) "Cellule: Lightweight Execution Environment for Virtualized Accelerators", Vishakha Gupta, Jimi Xenidis, **Priyanka Tembey**, Ada Gavrilovska, Karsten Schwan (Poster) Supercomputing, 2009
- 3) "Flexible Classification on Heterogeneous Multicore Appliances", **Priyanka Tembey**, Anish Bhatt, Dulloor Rao, Ada Gavrilovska, Karsten Schwan, 17<sup>th</sup> International Conference on Computer And Communication Networks, 2008.

4) "Towards IQ-Appliances: Quality-awareness in Information Virtualization."  
Radhika Niranjana, Ada Gavrilovska, Karsten Schwan, and **Priyanka Tembey**.  
In 6th Int'l Conf. on Network Computing and Applications (IEEE NCA07), Cambridge, MA, 2007.

### **Work Experience**

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#### **IBM T.J Watson Research Labs (May 2010 – August 2010)**

*Research Intern*

##### **Power-aware scheduling coordination in Multicore systems. (Ongoing work)**

The goal is to explore use of inTune-like coordination mechanisms at the system scheduler layer to attain platform power caps for single multicore platform nodes running multiple diverse applications.

#### **VMware Research Labs, Cambridge (May 2009 – August 2009)**

*Research Intern*

##### **mZip – Memory Saving mechanisms for Virtualized Mobile Systems.**

The goal was to explore page sharing and compression opportunities in virtualized mobile systems to support a scalable number of virtual machines on the cell phone.

#### **VMware Networking, Palo Alto, California (May 2008 – August 2008)**

*Research Intern*

##### **vProfile – Profiling of the ESX Network Stack to measure packet-path latency**

There are multiple layers within the ESX stack with slices of functionality within their proprietary hypervisor, VMM and the guest vNIC and there is a need to understand overheads of each slice while running different network application workloads in the guests. The objective of my project was to develop a lightweight vertical profiling tool that gave a layer-by-layer breakdown of latency-costs in processing a network packet as it traversed the entire length of the ESX network stack and provide insights into possible optimizations.

### **Skills**

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Programming in C/C++, Intel x86 Assembly, Intel IXP programming, VB, SQL, Python  
Codebase familiarity: Xen hypervisor, Linux Kernel and device drivers programming and debugging  
Platforms: Linux, Windows, Mac OS X

### **Honors**

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- SOSP 2009 Diversity Scholarship Recipient.
- University Topper during Bachelor's from amongst 2000 students.

### **References**

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*Prof Dr Karsten Schwan [karsten.schwan at domain cc.gatech.edu]*

*Dr Ada Gavrilovska [ada at domain cc.gatech.edu]*