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Karthik Jayaraman

Objective	An full-time position starting Summer 2006, in the areas of Operating Systems, Database Systems.
Education	**University of Wisconsin, Madison** **M.S. Computer Science, May 2006 (Expected)** • Currently doing courses in *Pervasive Parallelism* and *Computer Vision* • GPA: 4.0
	BITS, Pilani India **B.E. (Hons.) Computer Science, June 2004** • GPA: 10.0/10.0
Experience	**Amazon.com, Seattle WA, USA** **Summer Intern, June 2005 - Aug 2005** • Was a part of the Automated Advertising group and worked on projects related to Sponsored links • Wrote a new Ad Generator for browse pages in Amazon.com and worked on tools for tracking some important performance metrics of the ads using Perl as the scripting language **Department of Informatics and Telecommunications, University of Trento, Italy** **Research Intern, Jan 2004 – June 2004** • Incorporated features of Monitoring and fine grained Trust and Delegation in *Tropos*, a requirements-driven software development methodology. • Built the model using Datalog and the 'dlv' tool **University of Wisconsin, Madison** **Teaching Assistant (current)** • TA for the course cs537 - Introduction to Operating Systems • Involves helping out students with projects and grading the projects **Teaching Assistant (Spring 2005)** • TA for the course cs302 – Introduction to Programming • Worked as a lab consultant helping students with their assignments

	Teaching Assistant, (Fall 2004) • TA for the course cs367 – Introduction to Data Structures • Duties involved setting assignments and grading them. **Central Electronics Engineering Research Institute, Chennai, India** **Summer Intern, May 2002 – July 2002** • Worked on analysis of Herbs using Image processing • Image Processing done on MATLAB and the GUI on VB
Projects	**Thread detection in a Virtual Machine Monitor(VMM) (cs736) – group of 2**: Explored methods to make the VMM aware of the software abstractions within the VM. Specifically, worked on techniques for detecting the creation, termination and the switches of processes and extended the work to detect similar events for threads as well. These techniques are primarily based on inferences that can be derived from specific events within the VM, which are observable from the VMM. Also detected the scheduling of the idle thread within the VM. **Phase-based branch predictor selection(cs752) – group of 4:** Minimized the branch prediction misses and thus improved the IPC for number of workloads by choosing an appropriate configuration for the branch predictor, based on repeating phases of execution in a program. Performed similar analysis for reducing the cache misses by dynamically varying the cache sizes. **Optimization by query reordering using the buffer-pool(cs764) – group of 2:** Demonstrated how query-reordering and optimization can be combined in a single phase to gain significant performance improvement in a DBMS by reducing the IO cost. Reordering queries minimizes the total IO cost by utilizing the existing buffer pool contents. Developed two heuristics to reorder the queries and experimentally validated that one of them actually outperforms the optimal algorithm, when cost of computing the optimal order is included. **Development of a Spreadsheet application for the BITS Linux OS – group of 2:** Created a simple spreadsheet application in Java, as a part of the Office Suite developed for BITS Linux **Comparison of VPN Architectures**: Studied different VPN architectures and proposed an architecture for the BITS network. **Formal Framework for specifying and verifying security properties**: Worked on integration of Type systems for Mobility and Secrecy in verification of security protocols.
Skills	• **Operating Systems**: Win 98/NT/2k/Xp, Linux, Unix • **Languages**: C, Java, Perl, C++, x86 Assembly language, VerilogHDL, Datalog,VB • **Others**: SQL, MATLAB, Oracle PL/SQL, ASP.NET, DLV, MPI programming, Simplescalar.
Courses	**University of Wisconsin, Madison** cs838 - Pervasive Parallelism (current) cs766 - Computer Vision (current) cs736 – Advanced Operating Systems (Grade: A) cs752 – Advanced Computer Architecture (Grade: A) cs764 - Topics in Database Management Systems (Grade: A)

	cs787 - Advanced Algorithms (Grade: A) **BITS, Pilani India**: Data Structures & Algorithms, Advanced Computer Organization, Operating Systems, Database Systems, Programming Languages & Compiler Construction, Computers & Programming, Digital Electronics &Computer Organization, Machine Learning, Image Processing, Network Programming.
Awards	**Gold Medalist:** Awarded Gold Medal of BITS, Pilani for the academic year 2003-04 **Merit Scholarship**: Awarded for 8 continuous semesters at BITS, Pilani **NTSE Scholarship**: Awarded by National Council for Education Research and Training(NCERT) for academic excellence. **Programming awards**: Won prizes in various programming contests like "Code Rash", "C programming contest", "Flexible software" as a part of APOGEE 2003, an all-india intercollegiate Tech festival of BITS, Pilani.