

Timothy Wood

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Objective	To obtain a challenging internship and a better understanding of industrial research in the areas of operating systems, networking, and virtualization.	
Research Interests	My research interests broadly cover the fields of networking and operating systems. I am particularly interested in how <i>virtualization technologies</i> can be applied to desktops and servers to improve performance, reliability, and security.	
Education	MS/PhD Computer Science, University of Massachusetts, <i>Amherst, MA</i>	<i>Fall 2005-Present</i>
	B.S. Electrical & Computer Engineering, Rutgers University, <i>Piscataway, NJ</i>	<i>May 2005</i>
Research Experience	Laboratory for Advanced System Software, U. Mass, MA	<i>Fall 2005-Present</i>
	Research Adviser: Prashant Shenoy	
	I am involved with the Sandpiper project, investigating how to build scalable, high performance data centers. I am currently interested in utilizing virtualization technologies like Xen and VMware to improve performance and reliability, while reducing costs in modern data centers. I have designed a system which automatically detects when servers in a data center become overloaded, and responds by migrating virtual machines and adjusting resource allocations to balance load. This work was recently accepted to NSDI 2007. I have also worked on self managing storage systems and scheduling algorithms for network routers.	
	Undergraduate Researcher, Rutgers University, NJ	<i>Dec. 2003-May 2005</i>
	Research Adviser: Yanyong Zhang	
	As an undergraduate, I developed protocols for detecting Denial of Service (DoS) attacks and methods to minimize their effects, with an emphasis on sensor networks. I modified the TinyOS operating system at the MAC layer to allow a sensor network to detect a DoS attack and respond by changing to a different radio frequency to form a new network. This work resulted in a workshop paper at MobiCom and a conference paper at MobiHoc.	
	WINLAB Research Intern, Rutgers University, NJ	<i>Feb. 2003-August 2003</i>
	At the Wireless Information Network Laboratory, I worked on a team to design and program an autonomous robot that could navigate a building, mapping the physical layout and the strength of a wireless network. I wrote control software in C++ to interface with USB devices such as infrared distance sensors, stepper motors, and web cams.	
Publications	Black-box and Gray-box Strategies for Virtual Machine Migration	
	Timothy Wood, Prashant Shenoy, Arun Venkataramani, and Mazin Yousif. <i>Proceedings of the Fourth Symposium on Networked Systems Design and Implementation (NSDI), Cambridge, MA, April 2007.</i>	
	Efficient Data Migration in Self-managing Storage Systems	
	Vijay Sundaram, Timothy Wood, and Prashant Shenoy. <i>Proceedings of the Third International Conference on Autonomic Computing, Dublin, Ireland, June 2006.</i>	
	The Feasibility of Launching and Detecting Jamming Attacks in Wireless Networks	
	W. Xu, W. Trappe, Y. Zhang, T. Wood. <i>ACM MobiHoc, Urbana-Champaign, IL, May 2005.</i>	
	Channel Surfing and Spatial Retreats: Defenses Against Wireless Denial of Service	
	W. Xu, T. Wood, W. Trappe, Y. Zhang. <i>ACM Workshop on Wireless Security, MobiCom, Philadelphia, PA, Fall 2004.</i>	
Honors & Awards	Graduated with Highest Honors from Rutgers, 2005 Rutgers Undergraduate Research Fellowship, 2004 Member of Tau Beta Pi and Eta Kappa Nu Honor Societies, 2004 Member of Dean's List 2001-2005	

Work Experience **Systems Manager, Rutgers College Business Office, NJ** *April 2004 –May 2005*

- Developed and updated academic, financial, and informational databases.
- Automated paper systems using Microsoft Access and SQL databases.
- Added and improved web based interfaces to existing systems using ASP server coding.

Website Designer and Coder, Freelance *Feb. 2000-Sept. 2005*

- PHP and MySQL Coder for Chime Softwares, 2003-2005. Wrote scripts to access online databases for e-commerce websites.
- Consultant for Steven Stoft, 2003-2005. Helped develop metaPager, a dynamic, easy to use content management system. Managed hosting services for a dozen websites.
- Webmaster for Center for Jewish Studies, 2001-2004. Maintained and upgraded existing website with new information and layout. Wrote scripts to gather online survey information.
- Consultant for Fine Arts and Sociology departments, Rutgers University – Camden, 2000-2001. Designed graphics and wrote programs to retrieve information from user forms and automatically send email messages.

Graduate Coursework	Operating System Implementation Advanced Operating Systems	Modern Computer Architecture Advanced Network Systems
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References	<p>Prof. Prashant Shenoy <i>Associate Professor</i> Department of Computer Science University of Massachusetts, Amherst 140 Governors Dr Amherst, MA 01003 Tel: (413) 577-0850 Email: shenoy@cs.umass.edu http://www.cs.umass.edu/~shenoy</p>	<p>Prof. Arun Venkataramani <i>Assistant Professor</i> Department of Computer Science University of Massachusetts, Amherst 140 Governors Dr Amherst, MA 01003 Tel: (413) 545-3651 Email: arun@cs.umass.edu http://www.cs.umass.edu/~arun</p>
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