

# Vidhyashankar Venkataraman

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## Objective

Seeking a full-time position that will enable applying my analytical and algorithmic skills to solve challenging real-world problems faced by financial institutions.

## Education

<b>2003 -</b>	<b>PhD Student in Computer Science, Cornell University.</b>
	Advisor : Paul Francis
	Expected Graduation Date : December 2008
	Minor : Finance (Johnson School of Business)
	CGPA : 4.01/4
<b>1999 - 2003</b>	<b>B. Tech in Computer Science, Indian Institute of Technology (IIT), Madras, India.</b>
	CGPA : 9.5/10

## Interests

<i>Thesis</i>	High-throughput network protocols over the Internet.
<i>Research Foci</i>	Distributed Systems, Computer Networking, TCP/IP, Multicast, P2P systems, Live Streaming, Overlay Networks, Aggregation, DHTs, Distributed Filesystems, Mobile Ad hoc networks.
<i>Interests</i>	Discrete Algorithms, Databases, Publish/Subscribe.

## Work Experience

<i>Summer'08</i>	Summer intern at Yahoo!
<i>Summer'07 '06</i>	Summer intern at Bell Laboratories, Lucent Technologies.

## Research Experience

<i>Summer'08</i>	<b>Data Highway:</b> Conceived a scalable distributed design and implemented a simple prototype of a content-based publish subscribe system used for streaming applications. <i>At Yahoo Inc., Sunnyvale, California.</i>
<i>Summer'06</i> - <i>Spring'08</i> <i>Project Lead</i>	<b>Priority-layered Transport:</b> Developed a new transport protocol, PLT, for long-haul networks. Spent two summers at Bell Labs, New Jersey working on this problem. I designed the protocol over the Linux TCP code and implemented a performance-enhancing proxy that connects two subnets and serves hosts inside the subnet. (Collaborated with T. V. Lakshman, M. Kodialam, and P. Francis.) <i>At Cornell University and Lucent Technologies.</i>
<i>Fall'04</i> - <i>Spring'06</i> <i>Project Lead</i>	<b>Chunkyspread:</b> Designed and developed Chunkyspread, a heterogeneity-aware end-to-end multicast protocol for live streaming applications. The protocol has been tested on Emulab, and will be shortly deployed on Planetlab. The system along with the simulator has been implemented in C++. (Collaborated with P. Francis and K. Yoshida.) <i>At Cornell University.</i>
<i>Summer'02</i> - <i>Summer'03</i>	<b>RT-MAC:</b> Involved in developing real-time resource allocation algorithms for synchronous and asynchronous Ad Hoc wireless mesh networks. This also involved wide-scale simulations in the GloMoSim simulator. (Collaborated with Prof. C. S. R. Murthy.) <i>At IIT Madras.</i>

## Teaching Experience

<i>Spring'08</i>	Teaching Assistant for the graduate course " <b>Large-scale Architectural Models over the Internet</b> "; involved projects designed on <i>Amazon EC2, S3 and Hadoop's Map-Reduce API</i> .
<i>Spring'07 '06</i>	Teaching Assistant for the senior courses, " <i>Computer Networks</i> " and " <i>Computer Architecture</i> ".

## Publications

- V. Venkataraman, P. Francis, M. S. Kodialam, T. V. Lakshman.  
*A Priority-layered Approach to Transport for high bandwidth-delay product networks.*  
*In Submission: CoNext 2008*
- V. Venkataraman, K. Yoshida, P. Francis.  
*Heterogeneous Unstructured End System Multicast*  
*ICNP'06: In The Fourteenth IEEE International Conference on Network Protocols (ICNP), Nov 2006 (Speaker).*
- V. Venkataraman, P. Francis, J. Calandrino.  
*Chunkyspread: Multitree Unstructured Peer to Peer Multicast.*  
*IPTPS'06: In The Fifth International Workshop on Peer-to-Peer Systems (IPTPS), February 2006 (Speaker).*
- V. Venkataraman, P. Francis.  
*Unstructured Overlay Multicast with Fine-grained Load Control*  
*NSDI'05 (Poster): Poster in The Second Symposium on NSDI, May 2005.*
- V. Venkataraman, B.S. Manoj, C. Siva Ram Murthy.  
*Slot allocation schemes for delay sensitive traffic support in asynchronous wireless mesh networks*  
*CTN: In The International Journal of Computer and Telecommunications Networking, Computer Networks and ISDN Systems, 2005.*
- V. Venkataraman, B.S. Manoj, and C. Siva Ram Murthy.  
*Slot Allocation Schemes for Delay Sensitive Traffic Support in Asynchronous Wireless Mesh Networks.*  
*HiPC'03: HiPC, 2003.*

## Programming & System building Skills

<i>Languages</i>	C, C++, Java, bash and awk scripting; experience in C#, SML and Prolog.
<i>OS</i>	Linux, FreeBSD, Windows
<i>Experience</i>	Designed over Linux-TCP code to build a new network-transport protocol for long fat networks. Designed and built from scratch, Chunkyspread (over 15K lines), a P2P multicast system in C++. Developed and worked on a P2P multicast simulator Willow in Java. Used FreePastry code to develop capacity-balancing techniques in a structured P2P infrastructure. Have worked extensively on the Emulab and the WAIL-router testbeds and have experimented with Amazon EC2 and S3.

## Course Work

<i>Computer Science</i>	Advanced Systems, Analysis of Algorithms, Compiler Design for High-Performance Architectures, Adaptive Systems, Algorithmic Game Theory, Information Theory, Programming Languages, Automata Theory.
<i>Finance</i>	Fixed Income Securities and Interest Rate Derivatives, Derivatives and Securities, Managerial Finance.
<i>At IIT</i>	Discrete Mathematics, Graph Theory, Advanced Algorithms, Compilers, Operating Systems, Computer Networks, Databases, Systems Design, Real Time and High Performance Computing.

## Awards/ Honours

2007	Chunkyspread was mentioned in the <i>Ten Emerging Innovations</i> in MIT Technology Review (March'07).
2006	<i>Outstanding TA Award</i> for the course on Computer Architecture.
2003	<i>Cornell University Fellowship</i> for incoming PhD students.
2000	Received the <i>top prize for Academic Excellence</i> for the first year of my undergraduate study.
1998	Ranked among the top 0.2% of the examinees (Rank: 270) in the IIT Entrance Examination
1999	<i>Topper in Math and Chemistry</i> at AISSCE (All India Senior Secondary Certificate Examination).
1997	Received the <i>National Talent Search Scholarship</i> awarded by National Council for Educational Research and Training (NCERT), New Delhi.