

# Piyush Harsh

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<http://www.cise.ufl.edu/~pharsh/portfolio/>

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- OBJECTIVE** To obtain Full-Time R&D position with a reputed computer science core company or research lab/university starting anytime beginning January 2012.
- EDUCATION**
- |  |   |             |
|--|---|-------------|
| <b>PhD, Computer Engineering</b><br><b>GPA: 3.81/4.00</b>                                  | University of Florida, Gainesville, FL                | Summer 2010 |
| <b>Bachelor of Technology in Computer Science and Technology</b><br><b>GPA: 8.56/10.00</b> | Indian Institute of Technology (IIT), Roorkee, India. | Spring 2003 |
- DISSERTATION TOPIC** **A Distributed Approach to Multicast Session Discovery** - "*mDNS: A Globally Scalable Multicast Session Directory Architecture*".
- RESEARCH INTERESTS** Computer & Network Security, Protocol Development, Distributed Systems, IP Networks, TCP/IP, Multicast, Cognitive Networks, Cloud Computing, and Bio-inspired computing.
- PROFESSIONAL SERVICES**
- Journal Reviewer – The Journal of Supercomputing (Published by Springer)  
Journal Editor: Hamid R. Arabnia
  - ACM Professional Member (Member Number: 8935559)
  - Journal Reviewer – ETRI Journal, South Korea.
- PUBLICATIONS**
1. Lokesh Bhoobalan and Piyush Harsh – “**An Experimental Study and Analysis of Crowds Based Anonymity**”, accepted at ICOMP’11 to be held in Las Vegas in July 2011.
  2. Piyush Harsh and Richard Newman - "**Recovering from mDNS domain failures**", proceedings of ICOMP’10 held in Las Vegas in July 2010.
  3. Piyush Harsh, Randy Chow and Richard Newman – “**Gray Networking: a step towards next generation computer networks**”, proceedings of ACM SAC 2010, March 21-26 2010.
  4. Piyush Harsh and Richard Newman – “**Mode Independent Session Directory Service Architecture** - a unified approach for ASM and SSM multicast networks”, proceedings of ACM SAC 2010.
  5. Piyush Harsh and Richard Newman – “Efficient Distributed Search for Multicast Session Keywords”, proceedings of ICOMP’09, July 13-16, 2009, held at Las Vegas, USA.
  6. Piyush Harsh and Richard Newman – “**Using Geo-Spatial session tagging for smart multicast session discovery**”, proceedings of ACM SAC 2009, March 8-12, 2009.
  7. Piyush Harsh and Richard Newman – “**mDNS - A Proposal for Hierarchical Multicast Session Directory Architecture**", proceedings of ICOMP’08, July 14-17, 2008.
  8. Piyush Harsh and Richard Newman – “**An overlay solution to IP-Multicast address collision prevention**”, proceeding of IASTED EuroIMSA 2008, March 2008.
  9. Piyush Harsh and Richard Newman – “**Usability and Acceptance of UF-IBA, an Image-Based Authentication System**”, proceedings of IEEE ICCST 2007, October 2007.
  10. Richard E. Newman, Piyush Harsh and Prashant Jayaraman – “**Security Analysis of and Proposal for Image-based authentication**”, proceedings of IEEE ICCST 2005, October 2005
  11. Piyush Harsh – “**Design and analysis of covert channels through timed mix firewalls**” – CONS Internal Report, July 2005
  12. mDNS IETF RFC Draft: ID 19409 (Expired May 20 2010), can be accessed at <https://datatracker.ietf.org/doc/draft-mdns-rfc-informational/>

**WORK  
EXPERIENCE**

**R&D Engineer**

January 2011 – present  
Rennes, France

INRIA Bretagne-Atlantique Research Center

- Design architecture for federation of clouds
- Implement distributed resource manager for virtual execution platforms
- Preparation of deliverables for European Commission
- Incorporation of open cloud standards such as OVF, OCCI in Contrail implementation
- Evaluation of cloud platforms including OpenNebula, Eucalyptus, OpenStack for possible reuse

**IT Expert**

September 2010 – January 2011

CTRIIP, UF & Shands IT

Gainesville, Florida

- Development of automated tools for data extraction from NIH national clinical trials database.
- Clinical trials web based search tool development
- Clinical studies portal development using CakePHP
- Migration of old databases and stored procedures from MSSQL to MySQL

**mDNS – DNS Aware Multicast Sessions Directory Service**

August 2007 – August 2010

CISE, University of Florida

Gainesville, FL

- Designed the scalable and distributed architecture
- Co-Authored several research conference papers that has been presented in leading network conferences in USA and Europe.
- Implemented a proof of concept architecture using Java and Google Maps API.
- Incorporated geo-coding and hash based keyword space distribution
- Co-authored the IETF RFC for the service, currently under review by IETF board.

**Gray Networking**

June 2009 – August 2010

CISE, University of Florida

Gainesville, FL

**Covert Channels through Timed Mix Firewalls**

August 2004 – August 2005

Navy Research Lab and the University of Florida

Gainesville, FL

- Designed the covert channel module
- Implemented the real time covert channel in Java
- Setup and demonstration of the working system on a network of Linux systems
- Coordinated the implementation and integration of various modules within a team of 4 students.

**Image Based User Authentication**

August 2005 – August 2007

University of Florida

Gainesville, FL

- Co-Authored the concept paper which was accepted in IEEE Carnahan Conference on Security Technologies, Las Palmas Spain October 2005
- Implemented the working system using PHP, CSS and HTML
- Incorporated University of Florida guidelines on secure online dissemination of student grades
- Designed the automated log preprocessor and aggregator using Java and PHP

**CONS Co-System Administrator**

August 2005 – January 2011

CISE, University of Florida

Gainesville, FL

- Manage a network of around 10 systems consisting of Win XP, Win 2K, Suse and Fedora
- Maintaining CONS wiki, DNS bind server.
- Managing proper network and file access restrictions using Sudo and IPTables

**RELEVANT  
COURSE  
PROJECTS**

- Design and Implementation of a preferential-service capable router including implementation of line classifiers and leaky-bucket based host management systems (simulation) + analysis of service rates for different QoS class data packets – CEN6505 Advance Computer Networks
- P2P Client and Server Application – CEN5501C Computer Networks
- Java based implementation of man in the middle attack vulnerability assessment for 3DES in CBC, ECB and OFB modes and Diffie-Hellman key exchange using J2CE packages.- CEN5540 Computer and network Security
- Java based distributed election algorithm implementation for leader selection based on Sollins minimum spanning tree algorithm – COP5615 Distributed Systems

**TA  
EXPERIENCE**

TA - Support	Computer Networks	CEN5501C	Spring 07 and Summer 07
TA - Teaching	Discreet Structures	COT3100	Fall 04, Spring 05 and Summer 07
TA - Support	Distributed Systems	COP5615	Fall 06, 07, 09, Spring 08, Sum 08
TA - Support	Computer Network Security	CEN5540	Fall 05, Spring 06 and Fall 08
TA - Teaching	Computer Organization	CDA3101	Summer 04
TA - Support	Problem Solving using Software	CGS2531	Fall 03 and Spring 04

<b>RELEVANT GRADUATE COURSES</b>	Computer and Network Security Cryptographic Protocols Topics in Communication N/W Computer Networks Programming Languages	Distributed Operating Systems Physical Limits of Computing Formal Languages Advance Data Structures Software Testing & Verification	Advance Computer Networks Computer Architecture Analysis of Algorithms Math Methods for Intl. Systems
<b>RELEVANT UNDER - GRADUATE COURSES</b>	Data Structures System Software Discreet mathematics Electronic Devices & Circuits	Signals and Systems Mobile Computing Compiler Design Database Management Systems	Fuzzy Sets and Fuzzy Systems Microprocessors Computer Networks Telecommunication Networks
<b>COMPUTER EXPERIENCE</b>	PHP    Java    TCP    UDP HTML   CSS    LDAP    JavaScript C/C++   MySQL   IPv4    IPv6	Linux { Ubuntu, SUSE, Fedora, Mandriva } Windows { XP, Vista, 2000, 98 } Virtualization { VMware, Virtual PC }	
<b>AWARDS &amp; SCHOLARSHIP</b>	University of Florida Teaching Assistantship University of Florida Research Assistantship University of Florida Full Tuition Waiver Indian Institute of Technology Merit Scholarship Delhi Public School Merit Scholar		August 2003 – Present Summer 2005, 2006, 2007, 2008. August 2003 – Present August 1999 – December 2002 1997 – 1999
<b>REFERENCES</b>	Dr. Richard Newman ( <a href="http://www.cise.ufl.edu/~nemo/">http://www.cise.ufl.edu/~nemo/</a> ) Dr. Y. C. Chow ( <a href="http://www.cise.ufl.edu/~chow/">http://www.cise.ufl.edu/~chow/</a> ) Dr. Ye Xia ( <a href="http://www.cise.ufl.edu/~yx1/">http://www.cise.ufl.edu/~yx1/</a> ) More available upon request		