

## Vaishali Paithankar Sadaphal

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### CONTACT INFORMATION

Department of Computer Science and Engineering  
Indian Institute of Technology Delhi  
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### RESEARCH INTERESTS

Tracking a moving target with Sensor Networks, Web Acceleration

### EDUCATION

**Indian Institute of Technology Delhi**, Hauz Khas, New Delhi, India

Ph.D. Candidate, Computer Science and Engineering

- Dissertation Topic: "Tracking a moving target with Sensor Networks"
- Advisor: B.N.Jain and Huzur Saran

M.Tech., Computer Applications, December 2001

- Major Project Topic: "Intelligent DNS based Scheme to accelerate access to the web"
- Advisor: B.N.Jain

**Visvesvaraya National Institute of Technology**, Nagpur, Maharashtra, India

B.E., Electronics and Power, August, 1990

- B.E. Project Topic: "Microprocessor based Phase Measurement System"
- Advisor: S.R.Tambe

### EXPERIENCE

**Indian Institute of Technology Delhi**, Hauz Khas, New Delhi, India

*Ph.D. Candidate*

**July, 2002 - present**

- Teaching Assistant for Analysis and Design of Algorithms, Operating Systems, Wireless Networks, Software Design Laboratory, Compiler Design.

*Project Associate*

**April 2001 - July, 2002**

- Research in the area of web acceleration

**Siemens Ltd.** Power System Control Division, Mohan Cooperative Industrial Estate, Badarpur, New Delhi

*Consultant*

**September 2000 - March, 2001**

- Research and Development in the field of Supervisory Control and Data Acquisition (SCADA) systems

*Senior Executive*

**May, 1993 - June, 1997**

- Research, Development and Enhancement in functionality of Remote Terminal Units.
- Knowledge transfer of Remote Terminal Units from Siemens AG, Germany.
- In-charge of engineering, commissioning, troubleshooting of Remote Terminal Units
- Responsible for giving instructions to the works for customized manufacturing of the Remote Terminal Units.
- Designing of Modules for the Remote Terminal Unit.
- Handled SCADA projects for Calcutta Electricity Supply Corporation (CESC), Rajasthan State Electricity Board, Maharashtra State Electricity Board.
- In charge of the ISO Certification of the Department.

*Executive*

**August 1990 - December 1991**

- Enhanced functionality of Remote Terminal Units.
- Designed modules for the Remote Terminal Unit.

- Wrote procedures for Remote Terminal Modules
- Tested Remote Terminal Modules
- Engineering, commissioning, troubleshooting of Remote Terminal Units

## RESEARCH

**Indian Institute of Technology Delhi**, Haus Khas, New Delhi, India.

As a Ph.D. Candidate:

- Sensor Selection to determine location of a target in Wireless Sensor Network such that error in the location estimate is minimized.
- Node schedule of sensors such that a target is detected within a bounded time delay.
- Distributed tracking.

As Project Associate, proposed a method that allows a client to identify a server that minimizes the time to download a given web page:

- Proposed a device "proxy-DNS" to estimate time to download the page identified by a URL based on the available bandwidth and page size and time to download a page of size near-zero. Proposed that the "Proxy-DNS" receives estimated size of accessed web pages from proxy server which maintains this information in addition to caching accessed web pages.
- Time to download a page of size near-zero includes the round trip time to the server and the server response time which is proportional to the load on the server. To estimate this time a new tool "wing" similar to "ping" was developed which is based on measuring the round-trip delay in receiving a response to an HTTP HEAD Request.
- The above research work resulted into a patent application.

**Visvesvaraya National Institute of Technology**, Nagpur, Maharashtra, India.

As an Undergraduate Student:

- Designed a Real Time Microprocessor based Buzzer System.
- Presented a paper on Digital Image Processing in National Level Seminar arranged by IEEE student chapter at VNIT, Nagpur. Was placed at 2nd position.
- Research in the area of Protection Relays: Distance Relay behavior under power swings. Extraction of Fundamental Frequency Component from a distorted post fault Relaying Voltage.

## TALKS

- "Spread-based Sensor Selection in Sensor Networks", The 5th Annual Inter Research Institute Student Seminar in Computer Science (IRISS 2006), IIT Madras, January 19-21, 2006.
- "Sensor Selection Heuristic in Sensor Networks", International Workshop on RFID and Wireless Sensor Networks, Indian Institute of Technology Kanpur, Kanpur, India.
- "Information Driven Sensor Query", Ph.D. Seminar Series, Indian Institute of Technology Delhi, Hauz Khas, New Delhi, India.
- "Localization accuracy and Threshold network density in Tracking Sensor Networks", Ph.D. Seminar Series, Indian Institute of Technology Delhi, Hauz Khas, New Delhi, India.

## PATENTS

Applied for a US patent on "A new Proxy-DNS Services based Scheme to accelerate access to the web"

## PUBLICATIONS

- Vaishali P. Sadaphal, Bijendra Jain, "Spread-based Sensor Selection Heuristic in Sensor Networks", International Conference on COMMunication System softWARE and MiddlewaRE, COMSWARE 2006, New Delhi, India, January 8-12, 2006.
- Vaishali P. Sadaphal, Bijendra Jain, "Sensor Selection Heuristic for Target Tracking Sensor Networks", In Proc. of International Conference on High Performance Computing, HiPC 2005, LNCS, Springer Verlag, 2005.
- Vaishali P. Sadaphal, Bijendra Jain, "Localization accuracy and threshold network density in target tracking sensor networks", In Proc. of 7th IEEE International Conference on Personal Wireless Communication ICPWC, New Delhi, January 23-25, 2005.
- Huzur Saran, Agam Brahma, Vaishali P. Sadaphal, "Wireless access to undeserved communities", In Proc. of Naval Research Board Workshop on "Research Trends in Practice and Theory of Information

Technology”, Cochin, January 10-11, 2005.

- Integration with the Grid - A Novel Approach for Dually Excited Wind Power Generator at 1st Indian Wind Power Convention - Wind Power India 1996
- Distance Relays for EHV Lines Augmented by Impedance Derivatives at Ninth National Power System Conference NPSC 1996
- A new Set of Orthogonal Functions with a Periodic Sampling for Protective Relays at national Seminar on Power Scenario in India 1995

REVIEWER

- IEEE Wireless Communications and Networking Conference, WCNC 2005, 13-17 March.
- IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, WoWMoM 2005, June 13-16 2005.
- International Conference on COMMunication System softWARE and MiddlewaRE, COMSWARE 2006, January 8-12, 2006.

AWARDS

- Best poster presentation award at Wireless Networking Summit, WiNS 2006, April 7-8, 2006, Goa, India sponsored by Microsoft Research India.
- Awarded travel grant to attend SIGCOMM 2005 held in Philadelphia, USA.

COMPUTER SKILLS

- Languages: C, C++, Java, Clients and Servers in Unix.
- Applications: MATLAB, L<sup>A</sup>T<sub>E</sub>X, Spreadsheets.
- Operating Systems: Linux, Windows.

PROFESSIONAL  
MEMBERSHIP

Associate Member of Institute of Engineers - India