

Dr. Sapna Varshney

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A multi-faceted, dedicated and action-oriented professional with 12+ years of experience in IT industry and Academia. Effective communication skills, team player with strong interpersonal, analytic and problem-solving skills; intends to be part of a competent establishment which provides value-based growth and challenge.

Academic Details

Ph.D. (Computer Science)	Jamia Millia Islamia, 2017 Title: Use of Metaheuristic Optimization Techniques for Automatic Generation of Effective Test Cases
Master of Technology in Information Technology (M. Tech. – IT)	84.97% - USIT, GGSIPU - 2009
Master of Computer Application (MCA)	80% (Gold Medalist) - Banasthali Vidyapith – 2001
B.Sc. (Physics – Hons.)	83% - Miranda House, University of Delhi – 1998
Sr. Secondary (XII)	84.2% - C.B.S.E. – 1995
High School (X)	84% - C.B.S.E. – 1993
NET (Computer Science)	e-Certificate No.: 122037478 (NET-DEC. 2012)

Awards, Honors and Distinctions

- **Gold Medal and Mahindra Talent Scholarship for MCA.**
- **Recognition by the Jawaharlal Nehru Memorial Fund for academic excellence in MCA.**
- **National Merit Scholarship for B.Sc.-H Physics (University of Delhi) by Govt. of India.**
- **Note of appreciation from client at onsite location while working with Tata Consultancy Services.**

Research Areas

Search Based Software Testing, Metaheuristic Optimization Techniques

Skills Profile

- **Programming Languages** C, C++, J2EE (Core Java, Servlets, Java Server Pages), HTML, JavaScript, Assembly language
- **Data Bases** Oracle 8i/9i, MS Access, MySQL, LDAP Directory
- **Tools** Rational Rose for Design, IBM WebSphere Studio, Eclipse, NetBeans, Weka

Experience Summary

<u>Teaching Experience</u>	
Present Status	<ul style="list-style-type: none">Assistant Professor (Full Time Ad-hoc) from 7th Jan'2015 – Till Date at Department of Computer Science, University of Delhi, Delhi.
Previous Experience	<ul style="list-style-type: none">Assistant Professor (Full Time Ad-hoc) from 2nd Sep'2013 – 22nd May'2014 and 14th Aug'2014 – 13th Dec'2014 at Department of Computer Science, University of Delhi, Delhi.Lecturer (Part-time) for MCA from Aug'2011 – Aug'2013 at DKES – School of Computer Science (affiliated to GGSIPU), Delhi.Lecturer (Part-time) for B.Tech. (CSE and IT) from Mar'2011 – May'2011 at Guru Teghbahadur Institute of Technology (affiliated to GGSIPU), Delhi.Visiting faculty for B.Tech. (CSE) from Aug'2010 – Oct'2010 at Ambedkar Institute of Technology (Govt. College affiliated to GGSIPU), Delhi.
<u>Industry / Professional Experience</u>	4.5 Years as Assistant System Engineer, Tata Consultancy Services, Delhi, India from August' 2001 to January' 2006.
<u>Overseas Experience</u>	Project Coordinator for client at onsite location (USA) from Aug' 2003 to Jun' 2004.

Roles and Responsibilities

- Teaching of MCA and M.Sc. (CS) courses at Department of Computer Science, University of Delhi.
- Teaching of MCA courses at DKES – School of Computer Science (affiliated to GGSIPU), Delhi.
- Member of various departmental committees (Department Council, Website Committee, and Cleanliness Committee) at Department of Computer Science, University of Delhi.
- Development and maintenance of website of Department of Computer Science, University of Delhi.
- Preparation of Ad-hoc panel - Computer Science, University of Delhi.
- Coordinator for annual technical fest *Sankalan* at Department of Computer Science, University of Delhi.
- Coordinator for annual technical and cultural fest at DKES School of Computer Science (affiliated to GGSIPU).
- Responsible for conducting the major project of final year MCA students at Department of Computer Science, University of Delhi.
- J2EE Application Developer for web-based projects while working with Tata Consultancy Services.
- Project Coordinator for client at onsite location (USA) while working with Tata Consultancy Services.

Subjects of Interest

- Operating System
- Software Engineering
- Software Quality Assurance and Testing
- Computer Networks
- Data Mining
- Data Structures
- Algorithms
- Object Oriented Programming
- Database Management Systems
- E-commerce

List of Publications

Journals

1. **S. Varshney** and M. Mehrotra, "A Hybrid Particle Swarm Optimization and Differential Evolution based Test Data Generation Algorithm for Data-Flow Coverage using Neighbourhood Search Strategy", **Accepted in Informatica (E-SCI and SCOPUS) - To be published.**
2. **S. Varshney** and M. Mehrotra, "An Adaptive PSO-based Approach for Data Flow Coverage of a Program", **International Journal of Engineering Research & Technology (UGC approved)**, Vol. 6, No. 2, pp. 281-288, ISSN: 2278-0181, **2017.**
3. **S. Varshney** and M. Mehrotra, "Search-Based Test Data Generator for Data Flow Dependencies Using Dominance Concepts, Branch Distance and Elitism", **Springer Arabian Journal of Science and Engineering (SCI-E and SCOPUS)**, Vol. 41, No. 3, pp. 853-881, ISSN: 1319-8025, **2016.**
4. **S. Varshney** and M. Mehrotra, "An Improved PSO-based Test Data Generator for Data Flow Coverage", **International Journal of Applied Engineering Research (SCOPUS)**, Vol. 10, No. 55, pp. 2329-2336, ISSN: 0973-4562, **2015.**
5. S. Kumar, D. K. Yadav, D. A. Khan, and **S. Varshney**, "A Comparative Study of Automatic Test Data Generation for Data Flow Testing using GA, PSO & BPSO", **International Journal of Applied Engineering Research (SCOPUS)**, Vol. 10, No. 55, pp. 2124-2129, ISSN: 0973-4562, **2015.**
6. **S. Varshney** and M. Mehrotra, "Automated Software Test Data Generation for Data Flow Dependencies using Genetic Algorithm", **International Journal of Advanced Research in Computer Science and Software Engineering**, Vol. 4, No. 2, pp. 472-479, ISSN: 2277128X, **2014.**
7. **S. Varshney** and M. Mehrotra, "Search Based Software Test Data Generation for Structural Testing: A Perspective", **ACM SIGSOFT SEN**, Vol. 38, No. 4, DOI: 10.1145/2492248.24292277, **2013.**

Conferences / Seminars

8. **S. Varshney** and M. Mehrotra, "A Differential Evolution based Approach to generate Test Data for Data-Flow Coverage", In Proc. of the **IEEE International Conference on Computing, Communication and Automation (SCOPUS)**, Noida, India, ISBN: 978-1-5090-1666-2, 29-30 Apr **2016.**
9. **S. Varshney**, N. Rajpal, and R. Purwar, "Comparative Study of Image Segmentation Techniques and Object Matching using Segmentation", In Proc. of the **IEEE International Conference on Methods and Models in Computer Science (ICM2CS09)**, Jawaharlal Nehru University, New Delhi, India, pp. 1-6, ISBN: 978-1-4244-5051-0, 14-15 Dec **2009.**
10. **S. Varshney**, N. Rajpal, and R. Purwar, "Comparative Study of Image Segmentation Techniques", In Proc. of the **National Conference on Information Technology for Business Transformation** organized by Ajay Kumar Garg Engineering College, CSI and IETE, Ghaziabad, India, ISBN: 93-80043-13-9, 10-11 April **2009.**

Books

11. M. Mehrotra and **S. Varshney**, “Principles and Practices of Software Engineering”, Narosa Publishing House, 2016. ISBN: 978-81-8487-508-9

Courses / Workshops

12. Participated in **Author Workshop** on “**How to Write and Publish Scholarly Articles**” jointly organized by **Dr. Zakir Husain Library, Jamia Millia Islamia** and **Springer Nature** at Jamia Millia Islamia, New Delhi, India on August 24, **2017**.
13. Participated in **Workshop** on “**Network Analytics and Support Vector Machines & Applications**” organized by the **Department of Computer Science, University of Delhi**, Delhi, India on April 10, **2015**.
14. Participated in **Workshop** on “**Search Based Software Testing**” **co-located with 36th International Conference on Software Engineering**, Hyderabad, India, May 31 - June 7, **2014**.
15. **Trainings on Software Quality** - Statistical Process Control, PCMM Awareness, CMM Awareness, Defect Prevention and Causal Analysis – at **Tata Consultancy Services** from **2001 – 2002**.

Projects

16. **M. Tech Dissertation (2009)**: “Comparative Study of Image Segmentation Techniques and Object Matching using Segmentation”.
17. **MCA Project (2001)**: “Financial Industry Gateway web-based application for Securities and Banking Industry” in Tata Consultancy Services (TCS), Gurgaon.

(SAPNA VARSHNEY)