

**Dr. Sonia Goyal**  
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OBJECTIVE: To associate with an organization imparting quality education in the communication field where knowledge and abilities go hand and utilizes my strength and capabilities effectively.

**Academics:**

Degree	Institute	Month & Year of Passing	Class
Ph. D	Punjabi University, Patiala.	2016	Notification
M.E	Punjab Engineering College. Punjab University, Chandigarh.	May 2005	First Class
B. Tech	Punjab Technical University, Jalandhar.	May 2003	First Class

**Research Project Envisaged for Doctorate**

- ❖ **Ph. D Thesis:** Study and Optimization of Wireless Sensor Network Localization using Stochastic Method.

**Academic Experience:**

- ❖ **Lecturer**, Guru Teg Bahadur Khalsa Institute of Engineering and Technology, Malout from May 2005 to Dec. 2006.
- ❖ **Present Designation: Assistant Professor**, Deptt. of Electronics and Communication Engineering, Punjabi University, Patiala since Dec. 2006 to till date.

**Students guided:**

**Ph. D: 02 (Pursuing)**  
**M. Tech: 05 (Pursuing)**  
**M. Tech: 14 (Guided)**

**Technical Experience:**

- ❖ Expertise in Matlab, CST, HFSS.

- ❖ Computer skills and experience in scientific writing and documentation and hands on experience on computer software such as Power Point and MS Excel.

#### **Short Term Course and Workshop Attended:**

1. Participation in Spark Leadership summit from 08/03/2008 to 09/03/2008 organized by Infosys.
2. One day Workshop on emerging technologies in nano science sponsored by UGC on 20/02/2008 at Deptt. Of Physics, Punjabi University, Patiala
3. Participation in national seminar on radiation and materials on 03/10/2008 at Physics Department, Punjabi University, Patiala.
4. Two day Industrial training in VLSI Design organized by Atech Labs from 11/07/2008 to 12/07/2008 at UCoE, Punjabi University, Patiala.
5. Short term course on optimization techniques from 16/05/2011 to 20/05/2011 at NITTTR Chandigarh.
6. Orientation Programme from 01/03/2011 to 31/01/2011 organized by UGC at ASC Punjabi University, Patiala.
7. Refresher Course (Environmental Studies (ID): Electronic & Communication Engg. from 14/05/2012 to 06/02/2012 organized by UGC at ASC Punjabi University, Patiala.
8. Refresher course (Professional Courses(Law, Physiotherapy, MBA, MCA, Engineering, Tourism, Hospitality & Hotel Management) from 05/12/2014 to 31/05/2014 organized by UGC at ASC Punjabi University, Patiala.
9. Two Week Short Term Course on Cyber Threat Detection and Security from 04/01/2016 to 15/01/2016 at NITTTR Chandigarh.
10. One -Week AICTE recognised Short Term course on Wireless Communication conducted by ECE deptt. from 02/05/2016 to 6/5/2016 at Punjabi University, Patiala, organised by NITTTR Chandigarh.
11. One -Week AICTE recognised Short Term course on "Repair and Maintenance of electronic Measuring Instruments" conducted by ECE deptt. from 09/01/2017 to 13/01/2017 at Punjabi University, Patiala, organised by NITTTR Chandigarh.
12. Three days workshop on "Internet of Things" conducted by ZEDSTART at ECE deptt. of Punjabi University, Patiala.

#### **Papers presented in National Conference**

1. Paper entitled, "Fault Tolerance and task Scheduling in 4G cellular systems" at Khalsa College of Engineering & Technology on 28-29 March, 2014.
2. Paper entitled, "Comparative study of Notched Circular Slotted and Rectangular Slotted Microstrip patch antennas (MPA) for wideband applications" at Maharishi Markandeshwar University on 29th March, 2014.

3. Paper entitled, "Overview of sidelobe level reduction in Antenna array" at Indo Global college of engineering Abhipur, Mohali (Punjab) on 15th April, 2013.
4. Paper entitled, "Overview of Data Transmission Techniques in Wireless Network with Rayleigh Fading Channel Under Various Modulation Schemes" at B.K. Birla Institute of Engineering & Technology, Pilani on 4<sup>th</sup> Feb, 2012.
5. Paper entitled, "QOS for a Hybrid Satellite DVB Wireless Network with fade mitigation" at CSIR-CEERI, Pilani on October 12-14, 2011.
6. Paper entitled, "Energy Efficiency in Wireless Sensor Network: A Review", 10th Chandigarh Science Congress (CHASCON), Panjab University, Chandigarh, March 2016.

### **International Conference Attended**

1. Paper entitled, " Overview of GPS for Tracking and Positioning" 2nd International Conference on Recent Advancement in Technology and Management held at Jalvehra Campus, 5th November, 2011.
2. Paper entitled, " Flower Pollination Algorithm based Localization of Wireless Sensor Network", 2nd IEEE International conference on Recent Advances in Engineering and Computational Sciences held at UIET, Panjab University Chandigarh, 21st-22nd December, 2015
3. Jaspreet Kaur, Dr. Sonia Goyal, " Low Side Lobe Level Linear Array Optimization using Evolutionary Algorithms: Review", 2nd International conference on Innovative Trends in Electronics Engineering (ICITEE 2-2016) held on 24th November 2016 at Deptt. of ECE, Punjabi University, Patiala.

### **Paper Published in SCI International Journals**

1. Paper entitled, "Modified Bat Algorithm for Localization of Wireless Sensor Network", Wireless Personal Communication (International Journal of Springer), Vol. 86, No. 2. July 2015, pp. 657-670.
2. Paper entitled, "Wireless Sensor Network Localization based on Cuckoo Search Algorithm", Wireless Personal Communication (International Journal of Springer), Vol. 79, No. 1, 30th May 2014, pp. 223-234.

### **Paper Published in International Journals**

1. Paper entitled, " Optimized Routing in Wireless Ad-hoc Networks", International Journal of Electronics & Communication Technology, 11 March, 2011, Vol. 2, No. 1.
2. Paper entitled, " Comparison of OLSR and TORA Routing Protocol using OPNET Modeler", International Journal of Engineering Research and technology (IJERT), 12 July 2012, Vol. 1, No. 5.
3. Paper entitled, " Comparison of optimized link state routing Protocol on IPv4 and IPv6", International Journal of Computational Engineering & Management, 12 Sept. 2012, Vol. 15, No. 5.

4. Paper entitled, " Performance of Bat Algorithm on localization of wireless sensor networks", International Journal of Computers & Technology (IJCT), 13 May 2013, Vol. 6 No. 3, pp. 351-358.
5. Paper entitled, " Wireless Sensor Network Localization based on BAT Algorithm", International Journal of Emerging Technologies in Computational and Applied Sciences(IJETCAS), May 2013, Vol. 5, No. 4, pp. 507-512.
6. Paper entitled, " Study of Various PTS based Algorithms for PAPR reduction in OFDM systems", American International Journal of Research in Science, Technology, Engineering & Mathematics, May 2013, Vol. 1, No. 2, pp. 64-67.
7. Paper entitled, "An Overview of PAPR Reduction Techniques in OFDM system", International Journal of Engineering Science & Innovative Technology, 13 May 2013, Vol. 2, No. 3.
8. Paper entitled, "Bit Error Rate reduction in MIMO systems using Equalization techniques", International Journal of Engineering Science & Innovative Technology, 13 May. 2013, Vol. 2, No. 3.
9. Paper entitled, "Side Lobe Level Reduction in Antenna Array using Evolutionary Algorithms: A Review", International Journal of Electronics & Communication Technology, June 2013, Vol. 4, No. 3, pp.44-46.
10. Paper entitled, "PAPR reduction with Phase Shift Keying Modulation using Firefly Algorithm", International Journal of Engineering, Business and Enterprise Applications (IJEBA), 13 Aug. 2014, Vol. 1, No. 5, pp.108-112.
11. Paper entitled, "PAPR reduction in Multicarrier Modulations using Firefly Algorithm", International Journal of Innovative Research in Computer and Communication Engineering, 13 July.. 2014, Vol. 1, No. 5, pp.108-112.
12. Paper entitled, "Comparative Analysis of Side Lobe Level Reduction Optimization Algorithms of Linear Antenna Array", International Journal of Advanced Research in Computer and Communication Engineering, 13 Aug.. 2014, Vol. 2, No. 8, pp.108-112.
13. Paper entitled, "Symbol detection in MIMO systems using SA-BFO optimization algorithm", International Journal of Advanced Research in Computer and Communication Engineering, 13 Aug. 2014, Vol. 2, No. 8, pp.2955-2958.
14. Paper entitled, "Reduction of Side lobe level in linear antenna array using PSO GSA algorithm", International Journal of Enhanced Research in Science Technology & Engineering, 13 Sept. 2014, Vol. 2, No. 9, pp.19-23.
15. Paper entitled, " Comparison of Different Symbol Detection Techniques with SA-BFO Algorithm in MIMO Systems", International Journal of Scientific Research and Reviews, 13 Sept. 2014, Vol. 2, No. 3, pp.115-124.
16. Paper entitled, " Equivalent Circuit Modelling of Slotted Microstrip Patch Antenna", International Journal of Research in Engineering and Technology, 14 Jan 2014, Vol. 3, No. 1, pp.1-4.

17. Paper entitled, " Comparative study of Notched Circular Slotted and Rectangular Slotted Microstrip patch antennas (MPA) for wideband applications", International Journal of Engineering Research and Applications (IJERA), 29th March -14, Vol. 3, No. 1, pp.1-4.
18. Paper entitled, " Fault Tolerance and Task Allocation in Distributed Mobile Computing System", International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE), Vol. 3, No. 6, 14 June 2014, pp.655-658.
19. Paper entitled, " Reliable Task Allocation in Distributed Mobile Computing system with random node movement: Replication and Load Sharing Approach", International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE), Vol. 3, No. 6, 14 June 2014, pp.659-663.
20. Paper entitled, " Performance Enhancement of Dielectric Resonator Antenna (DRA) with optimized design parameters, International Journal of Computers and Technology (IJCT), ISSN: 2277-3061, pp. 1-6, June 2015.
21. Paper entitled, "A Review- Microstrip Patch Antenna Design", Journal of Electronics and Communication Engineering (IOSR-JECE), Vol. 1, 2016, e-2278-2834, p-2278-8735, pp. 22-27.
22. Paper entitled, " Study of Various Approaches for Minimizing Energy Consumption in Wireless Sensor Network", International Journal of Engineering Trends and Technology (IJETT), Vol. 33, No. 4, March 2016.ISSN: 2231-5381,pp. 180-183.
23. Paper entitled, " Effect of Height on Edge Tapered Rectangular Patch Antenna using Parasitic Stubs and Slots", International Journal of Engineering Trends and Technology, Vol. 34, No. 8, April 2016. ISSN: 2231-5381.
24. Paper entitled, " To study the Effect of Substrate Material for Microstrip Patch antenna", International Journal of Engineering Trends and Technology, Vol. 36, No. 9, June 2016. ISSN: 2231-5381.
25. Paper entitled, "Prolonging the Network Lifetime using Fuzzy Logic in Wireless Sensor Network", International Journal of Computer Applications (IJCA), Vol. 145, No. 5, July 2016. ISSN: 0975-8887, pp. 39-42.
26. Jaspreet Kaur, Dr. Sonia Goyal, " Optimal side Lobes Reduction of Linear Array Antenna Using Crow search Algorithm", International Journal for Research in Applied Science & Engineering Technology (IJRASET), Vol. 5, No. 7, July 2017. ISSN: 2321-9653, pp. 388-397.
27. Jaspreet Kaur, Dr. Sonia Goyal, " A Comparative study on Linear Array antenna Pattern Synthesis using Evolutionary Algorithms" , International Journal of advanced Research in Computer Science (IJARCS), Vol. 8, No. 5, May - June 2017. ISSN: 0976-5697, pp. 1582-1587.

### **Other Achievements**

1. Chaired the session in the International Conference on Innovative Trends in Electronics Engineering (ICITEE-2016) held on 29th January 2016 at Deptt. ECE, Punjabi University, Patiala.

2. Attended the session in the International Conference on Innovative Trends in Electronics Engineering (ICITEE-2016) held on 29th January 2016 at Deptt. ECE, Punjabi University, Patiala.
3. Organizing Secretary in the International Conference on Innovative Trends in Electronics Engineering (ICITEE-2016) held on 29th January 2016 at Deptt. ECE, Punjabi University, Patiala.
4. Organized Three days workshop on “Internet of Things” conducted by ZEDSTART at ECE deptt. of Punjabi University, Patiala.

**Interaction with other institutes:**

- ❖ Examiner for M. Tech in Punjab Technical University.
- ❖ Paper Setter for M. Tech. and B. Tech. in Punjab Technical University.
- ❖ Paper Setter for M. Tech. and B. Tech. in GNDU Amritsar.

**Personal Information:**

Date of Birth : 24<sup>th</sup> April 1982  
Sex / Marital status : Female (Married)  
Proficiency in Languages : English, Hindi and Punjabi