

# ABHILASH SINGH

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Junior Research Fellow, Indian Institute of Science Education and Research Bhopal, India  
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## EDUCATION

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**Integrated M.Tech. (CGPA: 9.41/10 or 3.76/4)** *Aug 2012 - July 2017*  
**School of Information and Communication Technology,**  
**Department of Electronics and Communication Engineering,**  
**Gautam Buddha University (State Govt. University),**  
**Greater Noida, India**

M.Tech in Wireless Communication and Networks.

Thesis: "Heuristic Approaches Towards Optimal Coverage in Wireless Sensor Network."

Advisor: Dr. Sandeep Sharma

B.Tech. in Electronic and Communication Engineering.

Project title: "Modelling and analysis of polarization noise in vertical cavity surface emitting LASERs."

## EXPERIENCE

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**Indian Institute of Science Education and Research** August 2019 - Present  
*Teaching Assistant* *Bhopal, India*

- Subject: Data Analysis and Statistics (using MATLAB/Python/R)

**Indian Institute of Science Education and Research** March 2018 - Present  
*Junior Research Fellow* *Bhopal, India*

- Working on NISAR (NASA-ISRO Synthetic Aperture Radar) project in collaboration of ISRO and NASA.
- Objective: SAR (Synthetic Aperture Radar) image processing to estimate soil moisture and its application to predict flood using machine learning and artificial intelligence.
- Progress: Developed a MATLAB based Graphical User Interface for estimation of soil moisture using SAR images.

**Defence Research and Development Organisation (DRDO)** June 2015 - July 2015  
*Summer Research Intern* *Dehradun, India*

- Worked on "Design and Simulation of Elementary SRAM and its Controller using Verilog on Model Sim Student Edition 10.4a."
- Advisor: Mr. Asheesh Thapliyal, Scientist D.

## PUBLICATIONS

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### Journal Articles

- J2. **Singh, A.**, Sharma, S., Singh, J. and Kumar, R. (2019). "Mathematical modelling for reducing the sensing of redundant information in WSNs based on biological inspired techniques," Journal of Intelligent and Fuzzy Systems, IOS press, (to appear).
- J1. **Singh, A.**, Sharma, M., Kumar, R., Singh, S. P. and Madhesiya, J. R. (2018). "Modelling and analysis of polarization noise in vertical cavity surface emitting lasers," Multiscale and Multidisciplinary Modeling, Experiments and Design, Springer. <https://doi.org/10.1007/s41939-018-0033-9>  
[\[PDF\]](#) [\[CODE\]](#)

## Conference Papers

- C6. **Singh, A.**, Meena, G. K., Kumar, S. and Gaurav, K. (2018). "Analysis of the effect of incidence angle and moisture content on the penetration depth of L- and S-band SAR signals into the ground surface," Vol. IV-5, pp. 197202. DOI:10.5194/isprs-annals-IV-5-197-2018 [PDF] [VIDEO]
- C5. Choudhary, G., **Singh, A.**, Kumar, R., Deo, B. K. S. and Sehgal, A. (2018). "Energy efficient distributed clustering algorithm for improving lifetime of WSNs," In International conference on computing for sustainable global development (INDIACom), 2018, IEEE (to appear).
- C4. Deo, B. K. S., **Singh, A.**, Kumar, R. and Singh, K. K. (2018). "An improved scheme asymmetrically and symmetrically clipped dc-biased optical (ASDCO)-OFDM for wireless im/dd optical system," In International conference on computing for sustainable global development (INDIACom), 2018, IEEE (to appear).
- C3. Madhesiya, J. R., Singh, **Singh, A.**, J., Kumar, R. and Singh, N. (2018). "Effect of aliasing and throughput at low sampling rate in wide band cognitive radio networks," In International conference on computing for sustainable global development (INDIACom), 2018, IEEE (to appear).
- C2. Kumar, R. and **Singh, A.** (2018). "Throughput optimization for wireless information and power transfer in communication network," In Signal Processing and Communication Engineering Systems (SPACES), 2018 conference (pp. 15), IEEE. DOI:10.1109/SPACES.2018.8316303 [PDF]
- C1. Sharma, S., Singh, J., Kumar, R. and **Singh, A.** (2017). "Throughput-save ratio optimization in wireless powered communication systems," In Information, communication, instrumentation and control international conference (pp. 16), IEEE. DOI:10.1109/ICOMICON.2017.8279031 [PDF]

## Abstracts

- A1. **Singh, A.**, Meena, G. K., Kumar, S. and Gaurav, K. (2019). "Evaluation of the penetration depth of L-and S-band (NISAR mission) microwave SAR signals into ground," In URSI AP-RASC 2019, New Delhi, India. Radio Science. DOI:10.23919/URSIAP-RASC.2019.8738217 <https://doi.org/10.1007/s41939-018-0033-9> [PDF] [PPT]

## AWARDS, ACHIEVEMENTS, HONORS AND GRANTS

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### ● DST INSPIRE FELLOWSHIP

- Selected for prestigious DST INSPIRE FELLOWSHIP in "Engineering Sciences". Awarded by Department of Science and Technology, Govt. of India.

### ● GOLD MEDALIST

- Throughout first rank holder in B.Tech. and M.Tech.

### ● NATIONAL LEVEL EXAM QUALIFIED

- GATE 2017
- UGC NET 2016, 2017 and 2018.

### ● RANK IN MATLAB CODING COMPETITION

- Rank 2000 out of 53663 (Top 4%) in Matlab Cody in Mathworks. (Click)
- Rank 634 out of 14657 (Top 4%) in Matlab file Exchange in Mathworks. (Click)

### ● GRANTS

- DAAD funded travel grant for attending a summer school on "Geospatial data science using R" at Friedrich Schiller University Jena, Germany.

## SKILLS

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- Computer Programming: C, MATLAB, Python.
- Analytical: Data Analysis, Machine Learning.
- Web Development: PHP, HTML, CSS.
- Hardware Description Language: VHDL, Verilog.
- Hardware Hands on: Microcontrollers (MSP430), RaspberryPi.
- Miscellaneous: OS: Linux, PPT:  $\LaTeX$  beamer, Documentation and Report:  $\LaTeX$  , MS word.
- Languages: English, Hindi, Bengali.

## MISCELLANEOUS EXPERIENCE

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- Professional Affiliations
  - ISPRS Individual Membership 2019 (Member Id: 61733, Member since 2018).
  - IEEE Member and IEEE GRSS Member 2019 (Member Id:95635042, Member since 2019)
  - Indian Radio Science Society (Member Id: S2019022, Member since 2019)
- Certification
  - Certificate of Achievement in Electronic Material and Devices from edX Verified. Massachusetts Institute of Technology. E-learning. ([Click](#))
  - Certificate of Achievement in MATLAB Verified. MathWORKs. E-learning. MATLAB Onramp self-paced training course. ([Click](#))

## TRAININGS/ WORKSHOPS/ CONFERENCES

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- Attended Conference on “Unmanned Aerial System in Geomatics” April 06th-07th, 2019. Organized by IIT Roorkee, Greater Noida Extension Center, U.P, India.
- Attended Conference on “URSI-Asia Pacific Radio Science Conference” March 09th-15th, 2019. Organized by JNU, URSI, InRaSS and INSA at India Habitat Centre, New Delhi. **(Talk)**
- Attended one day workshop on “Pre-Conference Radar Training Workshop” Organized by URSI Asia pacific radio science conference, held on 10th March 2019 at IHC, New Delhi.
- Attended a winter school on “Artificial Intelligence” Organized by Infosys Center for Artificial Intelligence at Indraprastha Institute of Information Technology Delhi (IIIT D), held on 18th-21st January 2019.
- Attended two day workshop on “Training Course on Remote Sensing, GIS and Machine Learning Methods for Environment, Natural Resources and Agriculture” Organized by Indraprastha Institute of Information Technology Delhi (IIIT D) in collaboration with Indian society for ecological economics, held on 4th-5th January 2019.
- 15 day visit as Project JRF on NISAR project at Indian Institute of Remote Sensing, ISRO, Dehradun, India, 16 December - 30 December '18.
- Attended one day workshop on “Data Science using R” Organized by Center for Computational Biology, Indraprastha Institute of Information Technology Delhi (IIIT D), held on 15th December 2018.

- Attended Conference on “ISPRS Technical Commission V Education and Outreach: Geo-spatial Technology - Pixel to People” NOVEMBER 20-23, 2018. Organized by Indian Institute of Remote Sensing, ISRO, Dehradun, India. **(Talk)**
- Attended “NISAR Science Workshop” November 15-17, 2018. Space Applications Centre, ISRO, Ahmedabad, India.
- Attended short-term training course on “SAR Data Processing and Analysis for Land Applications with Special Emphasis on L & S Bands” Organized by Space Application Centre, ISRO, Ahmedabad, India, 06-10 August '18.
- 15 day visit as Project JRF on NISAR project at Indian Institute of Remote Sensing, ISRO, Dehradun, India, 21 May - 04 June '18.
- Attended one day workshop on “Application of Satellite Altimetry for inland Waterbodies” Organised by Indian Institute of Remote Sensing, ISRO, Dehradun, India, 30 May '18.
- Attended National Seminar on “Medical image Analysis & Signal Processing” sponsored by IEEE. 22-23 Sep. 2017, Department of Electronics & Communication Engineering, G L Bajaj institute of Technology and Management (GLBITM), Greater Noida, UP, India.
- Attended Conference on “Signal Processing and Communication Engineering Systems” in association with IEEE. 4-5 Jan.2018 , Department of Electronics & Communication Engineering, Koneru Lakshmaiah University (KLU), Vijayawada, Andhra Pradesh.
- Attended hands-on workshop on “Embedded System Design Using MSP430 Microcontroller” sponsored by Texas Instrument. 4-6 December 2017, in Collaboration with Sapience Consulting under TI University Program at ABESIT, Ghaziabad.
- Attended Conference on “Information, communication, instrumentation and control” in association with IEEE. 17-19 Aug.2018, Department of Electronics & Communication Engineering, MEDICAPS University, Indore, Madhya Pradesh. **(Talk)**

## REFERENCES

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- Dr. Sandeep Sharma  
Department of Electronics and Communication Engineering,  
Gautam Buddha University, Greater Noida.  
Email:sandeepsharma@gbu.ac.in  
Website: <http://www.gbu.ac.in/faculty/Sandeep%20Sharma>
- Dr. Navaid Rizwi  
Department of Electronics and Communication Engineering,  
Gautam Buddha University, Greater Noida.  
Email: navaid@gbu.ac.in  
Website: <http://www.gbu.ac.in/faculty/Navaid%20Zafar%20Rizvi>

*The information stated above are true to the best of my knowledge and abilities.*

*August 10<sup>th</sup>, 2019*

*Abhilash Singh*