

Dr. Sandeep Kumar Singh



Curriculum Vitae

Phone +91-8800988592
Mail sandeepsingh012@gmail.com, eez148245@iitd.ac.in
Webpage <https://sites.google.com/view/sandeepksingh/>

EDUCATION

Ph.D. (Security in the Internet of Things (IoT) Space, 2014-2018)

Indian Institute of Technology Delhi, New Delhi, India

M.E. (Electro. & Telecom. Engg., 2010-2012)

CGPA/%: 8.56

Shri Govindram Seksaria Institute of Technology and Science, Indore, India (RGPV Bhopal)

B.Tech (Electronics & Communication, 2006-2010)

CGPA/%: 77.34%

Dr. A.P.J. Abdul Kalam Technical University, Lucknow, Uttar Pradesh, India

WORK EXPERIENCE

Assistant Professor

July 2018-Present

Indian Institute of Information Technology, Pune, India

Assistant Professor

May 2012 – July 2014

IMS Engineering College, Ghaziabad, India

RESEARCH AREAS

- Cyber-Physical Security of Smart Grid
- Cyber-Physical Security of Advanced Metering Infrastructure
- Security of Cyber-Physical System
- Security in Internet of Things (IoT) Space

ACADEMIC RESEARCH/PROJECT WORKS

Ph.D Supervisors: Prof. Ranjan Bose and Prof. Anupam Joshi (2014-2018)

Major Objectives

- Cyber-attack formulation to falsify system states in smart grid
- Detection of false data injection attacks in AC state estimation in smart grid using Transformation Based methods
- Electricity theft attack models in Advanced Metering Infrastructure
- Detection of electricity theft attacks in Advanced Metering Infrastructure using Information Theoretic methods
- Dimensionality reduction of large dimensional data of Advanced Metering Infrastructure using Principal Component Analysis
- Detection of electricity theft attacks using low dimensional data of Advanced Metering Infrastructure

PUBLICATIONS

Peer Reviewed Journals:

1. **Sandeep Kumar Singh**, Kush Khanna, Ranjan Bose, Bijaya Ketan Panigrahi and Anupam Joshi, "Joint Transformation based Detection of False Data Injection Attacks in Smart Grid", in *IEEE Transactions on Industrial Informatics*, vol. 14, no. 1, pp. 89-97, Jan. 2018.
2. **Sandeep Kumar Singh**, Ranjan Bose and Anupam Joshi, "Entropy Based Electricity Theft Detection in AMI Network", *IET Cyber-Physical Systems: Theory & Applications*, vol. 3, iss. 2, pp. 99-105, 2018.

3. **Sandeep Kumar Singh**, Ranjan Bose and Anupam Joshi, "Energy Theft Detection for Advanced Metering Infrastructure using Principal Component Analysis based Reconstructed Data", *IET Cyber-Physical Systems: Theory & Applications*. (Provisionally Accepted)
4. **Sandeep Kumar Singh**, Anjana Jain and Anurag Shrivastava, "Performance Analysis of Different Space Time Block Codes", *International Journal of Engineering Research and Applications*, vol. 2, issue 3, pp. 619-624, June 2012.

Conferences:

1. **Sandeep Kumar Singh**, Ranjan Bose and Anupam Joshi, "PCA based Electricity Theft Detection in Advanced Metering Infrastructure", *7th International Conference on Power Systems, 2017 (ICPS 2017)*, Pune, India, Dec 2017.
2. **Sandeep Kumar Singh**, Ranjan Bose and Anupam Joshi, "Energy Theft Detection in Advanced Metering Infrastructure", *IEEE 4rd World Forum on Internet of Things WF-IoT 2018*, Singapore, Feb 2018.
3. **Sandeep Kumar Singh**, Ranjan Bose and Anupam Joshi, "Minimizing Energy Theft by Statistical Distance Based Theft Detector in AMI", *2018 Twenty Fourth National Conference on Communications (NCC 2018)*, Hyderabad, India, February 2018.
4. Kush Khanna, **Sandeep Kumar Singh**, Ranjan Bose, Bijaya Ketan Panigrahi and Anupam Joshi, "On Detecting False Data Injection with Limited Network Information using Transformation-based Statistical Techniques", *IEEE PES General Meeting Conference, 2017*, USA, 2017.

CONFERENCES ATTENDED

1. "International Conference on Smart Cities" organized by Department of Management Studies, IIT Delhi, India, January 22, 2016.
2. "Ground Zero Summit 2015" organized by India Infosec Consortium (IIC), New Delhi, India, November 05-08, 2015.
3. International Conference on Emerging Trends & Development in Science, Management and Technology" organized by RKGIT, Ghaziabad, India, March 11-12, 2013.
4. "National Conference on Recent Trends in Engineering & Science" organized by PIES, Indore, India, April 20-21, 2012.
5. "National Conference on Challenges & Prospective in Engineering, Management & Pharmacy" organized by BM College, Indore, India, April 27-28, 2012.
6. "International Conference on Industrial Electronics and Computer Engineering" organized by IRAJ Research Forum, New Delhi, India, April 27, 2014.
7. "National Conference on Electronics Communication & Instrumentation" organized by CSE, Jhansi, India, April 02-03, 2010.

WORKSHOP/INTERNS/SHORT COURSES ATTENDED

Short Term Courses and Workshop:

1. Short Term Course on "Cognitive Radio: A new paradigm in Wireless", Organized by Dept. of Electrical Engineering, IIT Kanpur, during October 20-22, 2013.
2. Short Term Course on "Cognitive Radio: Fundamentals and Implementation Issues", Organized by Dept. of ECE, NIT Kurukshetra, during July 09-12, 2014.
3. Workshop on "Architectural Implications of Security in IoT Processors", Organized by Centre of Excellence in Cyber Systems and Information Assurance, IIT Delhi on November 28, 2017.
4. Workshop on "MIMO Wireless Communication Systems", Organized by Dept. of ECE, NIRMA University, Ahmedabad, during December 26-31, 2011.

Interns:

1. One month Industrial training at Paricha Thermal Power Plant, Jhansi.
2. Six month project on "Mobile Call set up System" at CSE, Jhansi, with CETPA INFOTECH Pvt Ltd.

WORKSHOP/INTERNS/SHORT COURSES ORGANIZED

1. Teaching Assistant on ISTE workshop on "Basic Electronics" organized by IIT Bombay, India, June 28-July 08, 2011.