HAROON RASHID

B-307, Academic Building
IIIT-Delhi, Delhi-110020
http://www.iiitd.edu.in/~haroonr

Phone : +91-xxxxxxxxxx
Email : haroonr@iiitd.ac.in
Alt : haroon.it@gmail.com

PARTICULARS

EDUCATION

Indraprastha Institute of Information Technology Delhi (IIIT-D) — Delhi, India
Ph.D. in Computer Science — *2014 – Present*
Thesis Topic: "Anomaly Detection in Buildings Energy Consumption"

National Institute of Technology Rourkela — Odisha, India
M. Tech. in Computer Science — *2011 – 2013*
Thesis Topic: "Localization in Wireless Sensor Networks"

University of Jammu — Jammu, India
B. E. in Information Technology — *2006 – 2010*

RESEARCH INTERESTS

Energy sustainability, Smart Buildings, Applied Machine Learning, Data Mining

PhD THESIS WORK

A significant portion of electrical energy gets wasted inside buildings due to abnormal user behaviour and faults in electrical appliances. The goal of my thesis is to propose automated approaches which can reduce this energy wastage.

MASTER'S DISSERTATION

Title: "Localization in Wireless Sensor Networks", *Advisor:* Prof. A. K. Turuk
This thesis presents three different techniques for localizing both static as well as mobile wireless sensor nodes. Main focus of the work was to reduce the number of beacon nodes required for localizing sensor network.

WORK EXPERIENCE

Intern, IIT Bombay — Mumbai, India
Advisor: Prof. Krithi Ramamritham — *Oct. - Dec., 2016*

Research Associate, IIIT Delhi — Delhi, India
Advisor: Prof. Pushpendra Singh — *Aug. - Dec., 2013*

PUBLICATIONS

1. **H. Rashid**, P. Singh. "Monitor: An abnormality detection approach in buildings energy consumption", *ACM COMPUTE'17*, 2017.
2. **H. Rashid**, P. M. Mammen, S. Singh, K. Ramamritham, P. Singh, P. Shenoy. "Want to reduce Energy Consumption? Don't depend on the Customers!", *ACM BuildSys'17*, 2017.
3. **H. Rashid**, P. Singh, K. Ramamritham. "Revisiting selection of residential consumers for demand response programs", *ACM BuildSys'17*, 2017.
4. **H. Rashid**, P. Arjuna, P. Singh, A. Singh. "Collect, Compare, and Score: A Generic Data-driven Anomaly Detection Method for Buildings", *ACM e-Energy'16, poster session*, 2016.

5. **H. Rashid**, A. K. Turuk. "Dead Reckoning Localization Technique for Mobile Wireless Sensor Networks", *IET - Wireless Sensor Systems*, 5(2), 2014.
6. **H. Rashid**, A. K. Turuk. "Localization of Wireless Sensor Networks Using a Single Anchor Node", *Wireless Personal communications - Springer*, 72(2), 2013.

SKILLS

- Topics - Forecasting, Anomaly detection, Time series data analysis
- Languages - R, Python, C, C++, Java (core), Javascript, RDF, SPARQL
- Tools - MATLAB, Protoge 5.0.0, Castalia (OMNeT++), EXata/Cyber, NS - 2, Wireshark

HONOURS & AWARDS

- Received TCS Research Fellowship for a duration of 4 years
- Qualified GATE 2011 in Computer Science and Engineering with 96.14 percentile

TEACHING EXPERIENCE

- **Teaching Assistant.** Advanced Programming, with Prof. Manish Sharotiya, Fall 2014, IIIT-Delhi.
- **Lab Assistant.** C++, with Prof. A. K. Turuk, Spring 2013, NIT Rourkela.
- **Lab Assistant.** Data Structure, with Prof. Ramesh Mohapatra, Fall 2012, NIT Rourkela.
- **Lab Assistant.** System Analysis and Design Lab, with Prof. Sujata Mohanty, Spring 2012, NIT Rourkela.

COURSE PROJECTS

- **An IoT Noise Monitoring System** [Course project, Group Size: 4]
  In this project, we created an end-to-end IoT system, which monitors the ambient noise levels at a sampling rate of 2 seconds. The collected noise readings are sent to a cloud platform, where we analyze the data and calculate various statistical parameters. Furthermore, the noise levels associated with inferred higher level abstractions are displayed to the end user via a mobile application. The objective of this project was to create a reliable end to end IoT system.
- **Internet traffic classification using Machine Learning** [Course project, Group Size: 2]
  In this project, we used two different approaches, *i.e.,* supervised learning and unsupervised learning to classify Internet traffic. Among supervised techniques we used Naive Bayes and CART, and among unsupervised techniques, K-Means and Expectation Maximization were used. Data sets for the classification were taken from WAND group at the University of Waikato. We spend most of the time in hand classification using Wireshark tool. Matlab 2013a implementations of the mentioned algorithms were used to classify the fine grained, hand classified data sets.
- **Analysis of Routing Attacks in Ad hoc Networks** [Research project, Group Size: 1]
  In this project, I did five different routing attacks, i.e., (i) Flooding, (ii) Blackhole, (iii) Rushing, (iv) Impersonation, and (v) Routing table poisoning on Ad hoc on demand Distance Vector (AODV) and on Dynamic Source Routing (DSR) protocols. Furthermore, detection of each attack and the corresponding countermeasures taken were implemented for both AODV and DSR. All implementations were done in Exata/Cyber simulator.
- **Localization of Wireles Sensor Networks** [Research project, Group Size: 1]
  In this project, I proposed various techniques for localizing nodes both in mobile and static scenarios. The focus of the work was to minimize localization time and to reduce the localization error. One of the proposed techniques has been published in "Wireless Personal Communications (Springer)" and other one in "IET - Wireless Sensor Systems" journal. All implementations were done in Castalia simulator.
- **Remote Desktop Administration** [Course project, Group Size: 4]
  In this project different issues of remote desktop administration were handled, i.e., managing multiple remote desktop connections in one console, surveillance of client systems and providing services remotely.

REFERENCES

Prof. Pushpendra Singh
Associate Professor
Dept. of Comp. Sc. & Engg.
IIIT-Delhi
New Delhi-110020, India
psingh@iiitd.ac.in

Prof. Ashok Kumar Turuk
Associate Professor
Dept. of Comp. Sc. & Engg.
NIT Rourkela
Rourkela-769008, India
akturuk@nitrkl.ac.in