

# Sunila Akbar

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## Education

- Oct 2014 – Jan 2018 **PhD Telecommunications**  
King's College London  
Supervisor: Prof Arumugam Nallanathan  
Dissertation: Heterogeneous Cellular Networks with Energy & Spectral Efficient Techniques
- Jan 2004 - Dec 2007 **MEngg Electrical Engineering**  
NED University of Engg. & Tech., Karachi, Pakistan  
CGPA: 3.9/4.0
- Jan 1994 to Dec 1997 **BE Electrical Engineering**  
NED University of Engg. & Tech., Karachi, Pakistan  
Percentage: 90 - Fifth Position among 160 students

## Awards

- Commonwealth Scholarship, UK, for pursuing PhD
- Merit Scholarship at NED University of Engg. & Tech., Karachi, Pakistan, for achieving Second Position among 160 students in the Third Year of BE degree

## Research Abstract

The work presented in my PhD thesis developed stochastic geometry based analytical models for heterogeneous cellular networks (HCNs) employing state-of-the-art spectrum and/or energy efficient radio frequency wireless power transfer, full duplex communications, and massive multiple input multiple output (MIMO) technologies. The analysis was performed for K-tier HCNs and the performance was evaluated in terms of Coverage Probability, Average Ergodic Rate, and Area Spectral Efficiency of the network.

## Publications

- **S. Akbar**, Y. Deng, A. Nallanathan, M. El Kashlan, and G. K. Karagiannidis, "Massive Multiuser MIMO in Heterogeneous Cellular Networks with Full Duplex Small Cells," in IEEE Trans. Commun., vol. PP, no.99, pp. 1-1, Jul. 2017.
- **S. Akbar**, Y. Deng, A. Nallanathan, M. El Kashlan and A. H. Aghvami, "Simultaneous Wireless Information and Power Transfer in K-Tier Heterogeneous Cellular Networks," IEEE Trans. Wireless Commun., vol. 15, no. 8, pp. 5804-5818, Aug. 2016.
- **S. Akbar**, Y. Deng, A. Nallanathan, M. El Kashlan, and G. K. Karagiannidis, "Massive MIMO-enabled HetNets with Full Duplex Small Cells," accepted for publication in Proc. IEEE Global Communications Conference (GLOBECOM), Singapore, Dec. 2017.
- **S. Akbar**, Y. Deng, A. Nallanathan and M. El Kashlan, "Downlink and Uplink Transmission in K-Tier Heterogeneous Cellular Network with Simultaneous Wireless Information and Power Transfer," in Proc. IEEE Global Communications Conference (GLOBECOM), San Diego, CA, Dec. 2015, pp. 1-6.
- S. Bano, T. Altaf and **S. Akbar**, "Microcontroller based spectrophotometer using compact disc as diffraction grid," in Proc. SPIE 7991, Display, Solid-State Lighting, Photovoltaics, and Optoelectronics in Energy II, 2010.

## Professional Experience

### Academic

- Feb 2018 - Present **Assistant Professor**, NED University of Engg. & Tech., Karachi, Pakistan
  - Teaching various postgraduate courses offered in Telecommunications Engg. Programme to the class size of 35 students
  - Teaching various undergraduate courses offered in Telecommunications Engg. Programme to the two classes of 35 students
  - Acting as a Class Advisor of Third Year - Telecommunications Engg. Students
  - Acting as a Departmental lead of 'Outcome-Based Education (OBE)' System implementation by Washington Accord
  - Member - Curriculum Committee of Telecommunications Engg. Programme
  - Served as a Technical Committee Chair at International Conference on Emerging Trends in Telecommunications and Electronic Engineering 2018

- Sep 2016 - Feb 2018 **Graduate Teaching Assistant**, King's College London
  - Teaching Assistant for first year undergraduate module in Electronic Engineering, 'Electronic Applications Project and Engineering Lab 1', for three groups of 35 students
  - Teaching Assistant for first year undergraduate module in Computer Science, 'Computer Systems I', for 35 students
- Oct 2008 - Sep 2014 **Assistant Professor**, NED University of Engg. & Tech., Karachi, Pakistan
  - Taught various Undergraduate Courses of Electrical and Electronic Engg. to the class size of 70 students.
  - Supervised Undergraduate Engineering Projects
  - Developed Curricula and Lab manuals for various Undergraduate Courses
  - Headed the committee of Final Year Project evaluation team
  - Served as a Class Advisor of First Year and Final Year of Bachelors of Telecommunications Engineering
- Jul 2006 - Sep 2008 **Lecturer**, NED University of Engg. & Tech., Karachi, Pakistan
  - Taught various Undergraduate Courses of Electrical and Electronic Engg. to the class size of 70 students.
  - Supervised Undergraduate Engineering Projects
- Jan 2004 - Jun 2006 **Visiting Faculty Member**, NED University of Engg. & Tech., Karachi, Pakistan
  - Taught 'Instrumentation' to the students of Electronic Engg. with the class size of 70 students.

### Non-Academic

- Sep 2000 - Apr 2002 **Projects Coordinator**, Towam Contracting Company, Dubai, UAE
  - Responsible for technical aspects of electrical projects, to monitor their execution as to their timely completion and profitability for the company
  - Prepared business plans, projected targets, and to review business plans periodically
- Jan 1999 - Aug 2000 **Assistant Engineer**, Araj Development and Construction, Abu Dhabi, UAE
  - Assisted the team in design and coordination of electrical projects
  - Practiced procurement methods to improve business performance and develop value engineering

### Professional Memberships

- Fellow - The Higher Education Academy, UK
- Member - Pakistan Engineering Council (PEC)

### Technical Skills

- Proficient in MATLAB
- Experience of coding in C++, Python
- Working experience of Adobe Illustrator

### Professional Development

- Nov 2018 "Leadership Skills", Workshop at NED University of Engg. and Tech., Karachi, Pakistan
- Oct 2018 "OBE System Design and Implementation", Training at NED University of Engg. And Tech., Karachi, Pakistan
- May 2017 "Development Module Workshop" Cumberland Lodge, Windsor, UK
- Mar 2015 "Preparing to Teach in Higher Education", King's College London
- Aug 2013 Certificate of Online course on "Machine Learning", Coursera - Prof Andrew Ng (Stanford University)
- Jun 2012 Workshop on "Circuits for Sensors and Instrumentation" by Prof Dr. Asad Abidi (University of California, Los Angeles), Lahore University of Management and Sciences (LUMS), Pakistan
- Dec 2011 "Professional Competency Enhancement Program for Teachers" by Higher Education Commission (HEC), Pakistan
- Apr 2007 "Workshop on Communication Equipment" by Electronica Venneta & IN. EL. SPA., Italy, at NED University of Engg. & Tech., Karachi, Pakistan
- Mar 2000 "Primavera Project Planner P3", NED University of Engg. & Tech., Karachi, Pakistan