

Name: Dr. Vimal Bhatia (PhD, SMIEEE, FIETE, SCRUM Master)

Designation: Professor

Date of Birth: 26 November 1977

Date of Superannuation: 30 November 2042

Organization: IIT Indore, India

Adjunct Faculty: IIT Delhi and IIIT Delhi, India

Educational Qualification:

Examination	College/University	Subjects	Year
Ph.D.	The University of Edinburgh, UK	Adaptive Signal Processing	2005
M. Tech.	Netaji Subhas Institute of Technology (formerly Delhi Institute of Technology), Delhi	Signal Processing	2001

Professional Experience

Worked in UK and India in ICT organizations for over 12 years at C-DOT (India), Hughes Software Systems (India), DTS (UK), AudioSoft (UK), AmberFin (UK), and Openwave Systems (UK). Working with IIT Indore as faculty in Discipline of Electrical Engineering since June 2013.

Significant achievements

My research is primarily in proposing new architecture and solutions for communications and signal processing problems. In particular, the research focus includes solutions for future wireless communications for efficient high speed data transfer. The research on algorithm design for large/massive-MIMO, and NOMA schemes are currently being explored in my research group. We have also been able to demonstrate world's first standard (IEEE 802.22) compliant TV-White Space platform on open source software and hardware with improved channel estimation, spectrum sensing and data rates. We have also explored compressed sensing based techniques for ultra-wide band communications. Validation of achievable data rates and outage by the future cooperative networks is found by our work on theoretical bounds under various channel conditions, modulation techniques and practical system considerations. The quality and innovative research has been well accepted and recognized by the IEEE, Elsevier, Springer, OSA, IET and IETE publications. Published articles have featured in the most downloaded/popular article list. The research has been accepted in leading conferences/workshops in communications and signal processing including ICC, Globecom, WCNC, VTC, SPAWC, SPCOM, ANTS, NCC, EUSIPCO, SSPD, Photonics and others. Some of the papers have received travel grants from DST and IEEE SPS.

External funding

Title of the project	Brief description	Project dates	Funding available / source of funds
Design and implementation of robust communication receiver based on OFDM in interference limited channels for TVWS	Algorithm and prototype development of IEEE 802.22 receiver.	Oct, 2014 till Jul, 2018	46,80,000 / Ministry of Electronics and Information Technology, India (USD 73,000/-)
Innovation and Entrepreneurship Development Center	To setup an Innovation and Entrepreneurship development centre at IIT Indore.	Jun, 2014 Till Jun, 2019	45,30,000 / Department of Science and Technology, India (USD 70,500/-)
Visvesvaraya PhD Scheme	Financial support for full time and part time PhD fellowships in the area of	Jun, 2014 till Jul, 2020	10,26,00,000 / Ministry of Electronics and Information Technology, India (USD 1,597,000/-)

	IT/ITeS and ESDM for five years each.		
Design of efficient strategies for phase estimation in optical metrology using advance signal processing techniques	To study and propose measurement of dynamic variables using advance signal processing techniques	Feb, 2017 till Feb, 2020	30,00,000 / Department of Science and Technology, India (USD 47,000/-)
Big Data Aware High Capacity Wireless Network Architecture Using Caching and Machine Learning	To study and propose machine learning algorithms for Big data caching in wireless networks	Jun, 2017 till Jun, 2020	30,00,000 / Department of Science and Technology, India (Indian side) 46,000 GBP (UK side) (Total: USD 110,000/-)
Advance Signal Processing for RADAR	GIAN Course for 5-days	Dec, 2017 till Dec, 2017	5,60,000 / Ministry of Human Resource Development, India (USD 8,700/-)
6G for Rural Communities	To study and propose solutions for 6G	April 2019 till March 2021	70,79,900 / Ministry of Human Resource Development, India (USD 103,000/-)
Edge Caching using Machine Learning	Solution for low latency computing at wireless edge	April 2019 till March 2021	49,91,844 / Ministry of Human Resource Development, India. (USD 73,000/-)

Specialization and Expertise: AI/Deep/Machine Learning, Wireless Communication, Signal Processing, Image Processing, Software Product Development, Entrepreneurship Development.

Awards and Distinctions:

- (i) IETE-Prof SVC Aiya Memorial Award 2019
- (ii) IEEE ANTS 2016 - Best Paper Award – PhD Supervisor and Co-author
- (iii) Young Faculty Research Fellowship (2016-2021) – Department of Electronics and Information Technology (worth Rs. 37 Lakhs)
- (iv) Optronix 2016 – Best Paper Award – Co-supervisor and Co-author
- (v) IEEE SPAWC 2016 - IEEE Signal Processing Society Travel Grant
- (vi) Best Technology Development Award, 2016 - IIT Indore
- (vii) Best UG Researcher Award, 2016 – IIT Indore – Faculty Supervisor
- (viii) KPMG Business Ethics Grant, 2016 – IIT Indore – Faculty Coordinator
- (ix) Best B. Tech. Project, 2015 – IIT Indore – Faculty Supervisor
- (x) IEEE INDICON 2014 Conference Best Paper Award – PhD Supervisor and Co-author
- (xi) National Entrepreneurship Network E-Week Runners-up award 2015 – Faculty Coordinator
- (xii) National Entrepreneurship Network E-Week Best Debutant Award – Faculty Coordinator
- (xiii) IITB National Entrepreneurship Challenge Runners-up – Faculty Coordinator
- (xiv) Product development at Openwave Systems, UK saving 2-3 million USD per 4G deployment
- (xv) Complete Certification for SCRUM Master by SCRUM Alliance, US
- (xvi) IEE Hudswell Bequest Fellowship for research travel to Carleton University, Canada
- (xvii) UK Engineering and Physical Science Research Council (EPSRC) studentship for pursuing PhD studies at The University of Edinburgh (Fully-funded)

Summary of research output (papers, patents, technology development)

Papers : 120 (Journal) 155 (Conferences) , Patents filed: 13 of which patents published: 07, Book chapters: 09, PhD students: 07 (Graduated), Citations: 1138, h-index: 17, i-10 index: 36, International White papers on 6G Communications (2) and contributing author to IEEE INTERNATIONAL NETWORK GENERATIONS ROADMAP (INGR) - “CONNECTING THE UNCONNECTED (CTU) WITH 5G AND B5G” under IEEE Future Networks Working Group.

Any other relevant information

Editor, IETE Technical Review (2017-), General Chair, IEEE ANTS 2018, General Vice-chair, IEEE ANTS 2017, Organizing Committee Member IEEE ANTS 2019 and IEEE ANTS 2020, Member Research Advisory Board IIIT-NR and Technical Advisory Committee NMIMS.