Washim Uddin Mondal

wmondal@purdue.edu | 11 March, 1994 | Burdwan, West Bengal, India

EDUCATION

Ph. D. | Indian Institute of Technology Kharagpur | 4 January 2017 - 4 January 2021

- Worked under the supervision of Prof. Goutam Das at G. S. Sanyal School of Telecommunications.
- Converted into Prime Minister's Research Fellowship (PMRF) in July 2018.

B. Tech.-M.Tech. Dual Degree | Indian Institute of Technology Kharagpur| July 2011 - April 2016

- Graduated from the Department of Electronics and Electrical Communication Engineering (E&ECE).
- M. Tech. Specialization in Telecommunications.
- Final Cumulative Grade Point Average (CGPA) was **9.51 / 10.0**.

10+2 | Burdwan Municipal High School | Burdwan| West Bengal

- Passed the Higher Secondary Examination conducted by West Bengal Council of Higher Secondary Education (WBCHSE) in May 2011 with **90.6%** marks.
- Passed the Secondary Examination conducted by West Bengal Board of Secondary Education (WBBSE) in May 2009 with **90.87%** marks.

EXPERIENCE

Purdue University | Postdoctoral researcher |12 April 2021 – Current | West Lafayette, Indiana, USA

- Working under the guidance of Prof. Satish V. Ukkusuri and Prof. Vaneet Aggarwal on reinforcement learning based models of large networked systems.

Indian Army | Special Invitee |27 September 2017 – 4 October 2017 | New Delhi, India

- Was specially invited by Directorate General of Signal Intelligence, Indian Army to solve a problem of national importance. Solved within one week with deliverable output.

WorldQuant LLC| Quantitative Researcher | July 2016 – December 2016 | Mumbai, India

- Worked on framing predictive mathematical models to anticipate price movements in stock markets.

École Polytechnique Fédérale de Lausanne (EPFL) | Internship| May 2014 – July 2014 | Lausanne, Switzerland

- Analytical modelling and simulation of different optical properties of carbon nanotube in radial mode of vibration.
- Performed under the supervision of Prof. Tobias J. Kippenberg.

AWARDS

2021 Best paper award at NeurIPS Workshop for Cooperative AI
2018 Prime Minister's Research Fellowship (PMRF)
2017 Appreciation Letter from Additional Director General (ADG), Signal Intelligence, Indian Army
2014 DAAD Scholarship
2011 IIT JEE| National Rank 953
2011 Kishor Vigyan Protsahan Yojana (KVPY) Scholarship| National Rank 81
2011 WB Joint Entrance Examination (Engineering)| State Rank 17
2011 Jagadish Bose National Science Talent Search (JBNSTS) Scholarship
2010 National Standard Examination in Physics| National Top 1%
2010 National Standard Examination in Astronomy (Senior)| State Top 1%
2007 National Standard Examination in Astronomy (Junior)| State Top 1%
2007 National Talent Search Examination (NTSE) Scholarship

SKILLS

• C • Python • PyTorch • MATLAB • OMNET++ • HTML • CSS • Javascript • LaTeX

COURSEWORK

- Information Theory
- Convex Optimization
- Physical Layer Security
- Linear Algebra
- Detection & Estimation Theory
- Queueing Theory
- Analog + Digital Communications
- Real Analysis
- Game Theory
- Basic Probability Theory
- MIMO Communications
- Complex Analysis

JOURNAL PUBLICATIONS

[9] W. U. Mondal, A. A. Sardar, and G. Das, 'Economic Analysis of Cognitive Underlay Networks: A Nash Bargaining Based Approach', **IEEE Transactions on Vehicular Technology**, vol. 70, no. 2, pp. 2024-2029, Feb. 2021.
[8] W. U. Mondal, and G. Das, 'On Exact Distribution of Poisson-Voronoi Area in K-tier HetNets with Generalized Association Rule', **IEEE Communications Letters**, vol. 24, no. 10, pp. 2142 - 2146, Oct. 2020.
[7] W. U. Mondal, D. Roy, S. Dutta, and G. Das, 'Economics of Resilient TWDM PONs', **IEEE/OSA Journal of Lightwave Technology**, vol. 38, no. 8, pp. 2114-2126, Apr. 2020.
[6] W. U. Mondal, A. A. Sardar, N. Biswas, and G. Das, 'Nash Bargaining Based Economic Analysis of Opportunistic Cognitive Cellular Networks', **IEEE Transactions on Cognitive Communications and Networking**, vol. 6, no. 1, pp. 242-255, Mar. 2020.
[5] W. U. Mondal, and G. Das, 'Economics of TWDM PONs with Nonlinear Pricing', **IEEE Communications Letters**, vol. 23, no. 5, pp. 822-825, May 2019.
[4] W. U. Mondal, D. Roy, S. Dutta, and G. Das, 'Economic Analysis of TWDM PONs: A Sustainability and Policy-Making Perspective', **IEEE/OSA Journal of Optical Communications and Networking**, vol. 11, no. 3, pp. 79-94, Mar. 2019.
[3] W. U. Mondal, and G. Das, 'Blocking Predation in Cellular Monopoly through Non-linear Spectrum Pricing', **IEEE Communications Letters**, vol. 21, no. 11, pp. 2464-2467, Nov. 2017.
[2] W. U. Mondal, and G. Das, 'Uplink User Process in Poisson Cellular Network', **IEEE Communications Letters**, vol. 21, no. 9, pp. 2013-2016, Sept. 2017.
[1] W. U. Mondal, S. Biswas, G. Das, and P. Ray, 'Traffic-Aware Green Cognitive Radio', **Physical Communication**, vol. 23, pp. 20-28, Jun. 2017.

CONFERENCE PUBLICATIONS

[4] W. U. Mondal, M. Agarwal, V. Aggarwal, and S. V. Ukkusuri, 'On the Approximation of Cooperative Heterogeneous Multi-Agent Reinforcement Learning (MARL) using Mean Field Control (MFC)', **Neural Information Processing Systems (NeurIPS)** Workshop for Cooperative AI, 2021, **Best paper award, Spotlight talk**.
[3] W. U. Mondal, and G. Das, 'Predation Blocking Strategies in Real Cellular Networks and Its Impact on Spectrum Revenue', **IEEE Vehicular Technology Conference (VTC-Fall)**, Honolulu, Hawaii, USA, 2019.
[2] W. U. Mondal, A. A. Sardar, N. Biswas, and G. Das, 'Nash Bargaining Based Economic Analysis of Cognitive Cellular Networks', **IEEE International Conference on Communications (ICC)**, Shanghai, China, 2019.
[1] A. A. Sardar, W. U. Mondal, and G. Das, 'Predation Blocking Strategy in Presence of Fraudulent Incumbent Service Provider', **IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS)**, Goa, India, 2019.

PREPRINTS

[1] A. A. Sardar, D. Roy, W. U. Mondal, and G. Das, 'Queueing Analysis of Opportunistic Cognitive Radio IoT Network with Imperfect Sensing', arXiv:2103.08875.