

Dr. Ritwik Haldar

CONTACT INFORMATION

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Google scholar page:
<https://scholar.google.com/citations?user=TpuQILAAAAAJ&hl=en&oi=ao>
Address: Vill- Baratala, P.O.- Bahirkunja, Dist- 24 Parganas (S), West Bengal-743318.



CURRENT POSITION

Associate Professor
Department of ECE, Haldia Institute of Technology (Autonomous Institution)

RESEARCH INTERESTS

Wireless Communication and Sensor Networks, Internet of Things, Machine Learning, and Robotics.

TECHNICAL EXPERTISE AND COMPETENCIES

- Internet of Things.
- Simulation and programming skill in *MATLAB*, *PYTHON*.
- *Multi-Sim* and *Xilinx-Vivado* for circuit simulation.

EDUCATION

National Institute of Technology Silchar, Assam, India

Ph. D, Electronics and Communication Engineering,

Date Awarded: **2nd November, 2019**

- **Thesis Topic:** *Performance Evaluation of Energy Harvested Wireless Sensor Network Systems Using Markov Model*

National Institute of Technology Silchar, Assam, India

M.Tech, Electronics and Communication Engineering

(**Specialization:** Microelectronics and VLSI Design), July 2012 - June 2014

(**CGPA: 8.1 out of 10**)

- **Thesis Topic:** *Design and Analysis of NEMFET for Low Power Electronics and Digital Circuit Applications*

West Bengal University of Technology, WB, India

B.Tech, Electronics and Communication Engineering,

Aug. 2008 - May 2012 (**CGPA: 7.52 out of 10**)

Muchisha Haridas Krishi Silpa Vidyapith, West Bengal

Higher Secondary Examination (W.B.C.H.S.E.)(2007); Percentage: **67.2%**

Raipur Sri Sri Ramkrishna Amrita Vidyalaya, West Bengal

Secondary Examination (W.B.B.S.E.) (2005); Percentage: **77.2%**

RESEARCH SUMMARY

Wireless Sensor Networks (WSNs) have enormous applications which ranges from environmental, industry, and building monitoring to border security and health care. Energy Harvesting (EH) based WSNs are the implementation of sensor nodes (SNs) which have the capability to harvest energy enables the long lasting WSN operations. But, uncertain energy harvesting process cause temporal death and degrades quality of service.

The issues are resolved by the estimation of temporal death time. The temporal death time or the timing of energy outage of an EH SN is estimated by employing the absorbing discrete time Markov chain (DTMC) model. The timing of event loss is estimated for EH SN with buffer storage also. A new hybrid system is proposed where both conventional and EH SNs are considered. The proposed hybrid system increases the lifetime and decreases the effective cost. A novel closed-form expression is derived for the estimation of temporal death time which reduces computational complexity of DTMC model of $O(n^{2.736})$ to $O(1)$.

PEER- REVIEWED JOURNALS

- ❖ **R. Haldar**, A. Hossain and K. G. Panda, "Estimation of Event Loss Duration for Energy Harvested Wireless Body Sensor Node," *Telecommunication systems journal*, **Springer**, vol. 70, no. 2, pp. 231-244, 2019. DOI: 10.1007/s11235-018-0491-8. (SCI)
- ❖ **R. Haldar**, A. Hossain and K. G. Panda, "Performance Evaluation of a Low-Power Wireless Sensor Node with Hybrid Energy Storage," *International journal of communication systems*, **Wiley**, vol. 32, no. 2, 2019, e3847. DOI:10.1002/dac.3847. (SCI)
- ❖ P. Hait, R. Karthik, R. Mitra, and **Ritwik Haldar**. "Natural and Artificial Fibre Reinforced Concrete: A State-of-art Review." *International Journal of Engineering*, vol. 37, no. 3, 2024: 503-510.(Scopus)
- ❖ V. Waiker, J. V. N. Ramesh, A. Kiran, P. Jangir, **Ritwik Haldar**, P. R. Babu, and E. Thenmozhi, "Enhancing Student Well-Being Prediction with an Innovative Attention-LSTM Model," *International Journal of Advanced Computer Science & Applications* vol. 15, no. 9, 2024. (Scopus)
- ❖ Shanmugasundar, G., Jasgurpreet Singh Chohan, Akash Nag, S. P. Samal, Pradeep Jangir, and **Ritwik Haldar**, "Parametric Optimization of Abrasive Water Jet Machining Process Using Copras and Vikor Methods," *MM Science Journal* (2024). (Scopus)
- ❖ Begum, Khaja Shahini, Srinivas Ambala, Bathina Rajesh Kumar, Mohd Shukri Ab Yajid, Elangovan Muniyandy, and **Ritwik Haldar**, "Climate Change-based Urban Geographical Regions Planning: Sustainable Application Using Artificial Intelligence," *Remote Sensing in Earth Systems Sciences*, **Springer**, pp1-10, 2024. (Scopus)
- ❖ Begum, Khaja Shahini, Srinivas Ambala, Bathina Rajesh Kumar, Mohd Shukri Ab Yajid, Elangovan Muniyandy, and **Ritwik Haldar**, "Disaster Based

Geographical Region Analysis Using Climate Change Detection Using Deep Learning Algorithm," *Remote Sensing in Earth Systems Sciences*, Springer, 2024.(Accepted) (Scopus)

CONFERENCE PROCEEDING S

- ❖ **R. Haldar**, K. Guha, and S. Baishya, "Effect on Pull-in Voltage and Current in NEMFET by Scaling Channel Length," *TENCON 2015-2015 IEEE Region 10 Conference Singapore*, pp. 1-4., 2015.
- ❖ **R. Haldar**, K. G. Panda, A. Hossain, "Estimation of Outage Duration for a Mobile Sensor Node," *IEEE 2018 7th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions)(ICRITO)*, pp. 347-350., 2018, Noida, India)
- ❖ R. Sharma, S. Baishya, **R. Haldar**, and K. Guha, "Future Transistor For Hand-Held Devices," *International Journal of Innovative Research in Science, Engineering and Technology*, vol. 3, no. 3, March, 2014.

TEACHING AND RESEARCH EXPERIENCE

5.7 Years

- **Assistant Professor**, Dept. of ECE, VelTech University (03/06/2019-15/01/2025)
- **Associate Professor**, Dept. of ECE, Haldia Institute of Tehcnology (Ongoing)
- ❖ Internet of Things
- ❖ Wireless Communication Network
- ❖ Communication Systems
- ❖ Wireless Communication

AWARDS, FELLOWSHIP S & TRAININGS

- ❖ Qualified **GATE 2012**.
- ❖ Qualified **GATE 2024**.

Trainings:

- ❖ Complted online course on " **Remote Sensing & GIS Technology and Applications for University Teachers & Government Officials**" organized by Indian Institute of Remote Sensing (IIRS), ISRO from 13th June-1st July 2020.
- ❖ Participated in faculty develop program on "**Machine Learning and IoT with AWS**" organized by Indian Institute of Technology from 23th June-2nd July 2020
- ❖ Undergone vocational training in "**Wireless, Wi-Fi & WiMAX Communication**", course from 11.06.2011 to 13.07.2011 from Zeta-lab (Kolkata).
- ❖ Undergone hands-on training-cum-workshop on "**Optival Fibre Connectorisation, Splicing and OTDR testing**" from 5th july to 25th july, 2010

SEMINAR&
CONFERENCE
INVITED
TALK
DELIVERED

- ❖ Delivered an **Invited Talk** in STTP programme on “*Signal Processing Techniques for Advanced Wireless Communication*” organized by Department of Electronics & Communication Engineering, Jayamukhi Institute of Technological Sciences, Kolkata during 24th-29th August, 2019, sponsored by AICTE.

PROFESSIONAL
MEMBERSHIP

IEEE Member, IEEE Communication Society (2018-2025)

PERSONAL
DETAILS

Date of Birth: 8th July. 1990

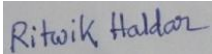
Language Known: English, Hindi, Bengali.

Marital Status: Married

Nationality: Indian

I hereby declare that the above particulars are true to the best of my knowledge and belief.

Date – 12.03.2025
Place – Haldia


(Dr. RITWIK HALDAR)