

# **Dr. Bibhuti Ranjan Bhattacharjya**

*Assistant Professor*  
*Department of Design*  
*IIT Roorkee*  
*Uttarakhand, India*



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Research area: Design thinking for innovation; Product design, Ergonomics and human factors; Frugal innovation and frugality; Technology, development and society

## **Education**

**Doctorate of Philosophy (Ph.D.)** 2014-2020

School of Agro and Rural Technology, IIT Guwahati

**Master of Technology (M. Tech.)** 2012-2014

Department of Mechanical Engineering, IIT Guwahati

**Bachelor of Engineering (B.E.)** 2006- 2010

Department of Mechanical Engineering, Assam Engineering College, Gauhati University, Assam

## **Professional Experiences**

**Assistant Professor** June, 2022- continued

Department of Design, IIT Roorkee

Consultant Researcher February, 2021- May 2022

**Trans-disciplinary Research Cluster on Frugality Studies (TRCFS)**

(Jawaharlal Nehru University, New Delhi & Leiden-Delft-Erasmus International Centre for Frugal Innovations, the Netherlands)

**Senior Technical Professional** September, 2019 –January, 2021

Unnat Bharat Abhiyan Cell– IIT Guwahati

**Associate Project Engineer and Project Engineer** June, 2011 -July, 2014

Research and Development Section, IIT Guwahati

Project: Rural Technology Action Group- North East, sponsored by the Office of the Principal Scientific Adviser to Govt. of India

## **Administrative Positions**

- **Co-Coordinator**, Regional Coordinating Institute, Unnat Bharat Abhiyan, IIT Roorkee (since May 2023)
- **Member**, Department Research Committee, Department of Design, IIT Roorkee (since July 2023)
- **Member**, Faculty Search Committee, Department of Design, IIT Roorkee (since January 2023)
- **Member**, Anti Ragging Committee, Department of Design, IIT Roorkee (since September 2022)
- **Department Coordinator**, Career Development Cell, IIT Roorkee (since August 2022)

## **Sponsored projects**

- *Developing a roadmap for Handloom Industry of Tripura* sponsored by NABARD, 2023 (Involvement- PI)
- *Design and development of Coffee Harvesting Machine* sponsored by **Coffee Research Institute**, 2023-25 (Involvement- PI)
- *“Frugal Innovation Ecosystems for Healthcare Technologies in India”* sponsored by **NSTMIS, DST, Govt. of India**, 2023-2026. (Involvement- Co-PI)
- *“Drudgery reduction of tribal women through S&T intervention in betel nut cutting tool”* sponsored by **Science for Equity Empowerment and Development Division, Department of Science and Technology, Government of India**, 2020-2021. (Involvement- Co-PI)

- “Design and development of a solar-powered pottery Chaak” sponsored by the **Assam Science Technology and Environment Council, Govt. of Assam under the scheme S&T Institutional and Human Capacity Building, DST, Govt. of India, 2021-2022.** (Involvement- Co-PI)
- “Empowering women through Appropriate technology intervention in weaving sector for Productivity enhancement and drudgery reduction of artisans” sponsored by the **Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology, New Delhi, 2021-23.** (Involvement- Co-PI)

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#### Teaching Assignment at IIT Roorkee

- Ideation Project
- Introduction to Design and Prototyping
- System Thinking
- Product Detailing
- Technology Management
- Product Innovation and Management

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#### Student Supervision

- M. Des: 03 (completed)
- PhD: 05 (ongoing)

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#### Publications

##### Book Chapter

- B.R. Bhattacharjya and S.K. Kakoty. 2019. *A Study on the Anthropometry of the Hira Community of Assam: Its Use in Redesigning a Pottery Wheel*. In: Chakrabarti A. (eds.) Research into Design for a Connected World. Smart Innovation, Systems and Technologies, vol. 135. Springer, Singapore. ([https://doi.org/10.1007/978-981-13-5977-4\\_35](https://doi.org/10.1007/978-981-13-5977-4_35)).
- B.R. Bhattacharjya, S. Sarmah and, S.K. Kakoty. 2019. *Design and Development of Technology Appropriate for Rural Community to Address Sustainability*. In: Saha S., Ravi M. (eds) **Rural Technology Development and Delivery**. Design Science and Innovation. Springer, Singapore. ([https://doi.org/10.1007/978-981-13-6435-8\\_6](https://doi.org/10.1007/978-981-13-6435-8_6)).

##### Journal

- B. R. Bhattacharjya, S. K. Kakoty and S. Singha, 2019. *A feedback mechanism for appropriate technology development and dissemination: Case Study approach*, **Technology in Society** 57, 104-114. (<https://doi.org/10.1016/j.techsoc.2018.12.008>).
- B. R. Bhattacharjya, S. K. Kakoty, 2020. *A survey on the anthropometric data of five ethnic groups of Assam with gender and ethnic diversity: Application of the data in redesigning a manual pottery wheel*, **International Journal of Industrial Ergonomics** 76, 102927. ([doi.org/10.1016/j.ergon.2020.102927](https://doi.org/10.1016/j.ergon.2020.102927)).
- B. R. Bhattacharjya, S. K. Kakoty, 2020. *An exploration of intermediary's role in participatory product design at the bottom of the pyramid: the case of Improved Pedal-operated Chaak*, **ASME Journal of Mechanical Design** 142(12), 124501 (<https://doi.org/10.1115/1.4047897>).
- B. R. Bhattacharjya, S. K. Medhi, S. K. Kakoty, 2022. The application of ethnographic methods to engineering for global development: the case of Improved Betel Nut Cutter, **ASME Journal of Mechanical Design** 144 (6), 064501; DOI:10.1115/1.4053456.
- B. R. Bhattacharjya, S. Bhaduri, S. K. Kakoty. 2023. Co-creating community-led frugal innovation: An adapted Quadruple Helix, **Technovation** 124, 102752.

## Conference

- Chowdhury, N., Bhaduri, S., Bhattacharjya, B. R., Mishra, R.K., Neog, B., Ray, R. S., Talukdar, P. *Validating Frugal Technologies: Two Cases from India*, Small science: Perspectives on contemporary small scale research, Institut d'Història de la Ciència, Universitat Autònoma de Barcelona, Barcelona, Spain, February 2023.
- L. A. Meetei, **B. R. Bhattacharjya** and C. Wong. 2021. *Beyond the Ivory Tower: Can Technical University play an important role in the Periphery region?* 17th ASIALICS – the 3rd SEAC-STIPM Conference, Bangkok, Thailand, November 3-5, 2021.
- **B. R. Bhattacharjya**, S. Bhaduri, S. K. Kakoty. *The making of a frugal innovation ecosystem: A case from North-east India*, R&D Management Conference 2021, organized by the University of Strathclyde Glasgow, July 07-08, 2021.
- **B.R. Bhattacharjya**, S.K. Kakoty. *The determining factors of the frugal innovation process: The case of design and development of Improvised Pedal-Operated Chaak*, Fore International Conference on Frugal Approach to Innovation, organized by Fore School of Management, New Delhi, December 13-14, 2019.
- **B.R. Bhattacharjya**, S.K. Kakoty. *Presenting an iterative innovation framework perceived for resource-constrained society*, IEEE TEMS International Symposium on innovation and Entrepreneurship (ISIE), 24-26 October, 2019, Hangzhou, China.
- **B. R. Bhattacharjya** and S. K. Kakoty, *Innovating demand-driven technology for rural mechanization, All India Seminar on Rural Industrialization through Innovative Process Mechanization*, The Institution of Engineers (India), Assam State Centre held on 08-09 June 2019.
- **B. R. Bhattacharjya** and S. K. Kakoty, *Towards an iterative technology innovation and management framework for resource-constrained society*, 28<sup>th</sup> International Conference for Management of Technology, 7 -11 April, 2019, Mumbai
- **B. R. Bhattacharjya** and S. K. Kakoty, *Fostering Sustainable Development Through Frugal Engineering Knowledge in the context of Pottery Sector of Assam*, International Conference on Frugal Innovation for Sustainable Global Development, 7 – 8 November, 2017, organized by Centre for Frugal Innovation in Africa at Museum Volkenkunde, Leiden, the Netherlands.
- P. K. Sarkar, **B. R. Bhattacharjya**, N. Kalita, S. K. Kakoty, P. Mahanta, *A comparative study of biomass dryers developed in India for drying agricultural products*, National seminar on Make in India and Rural North East: The Challenges, February 25-26, 2016
- **B. R. Bhattacharjya** and S. K. Kakoty, *Technology intervention in supari business for economic upliftment of rural women*, at International Conference on Science and Innovative Engineering 2015, Jawahar Engineering college, Chennai, Tamil Nadu, 2015

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## Op-Ed articles

- Amar Asom- 06; Dainik Asom- 02; Sadin- 01; Prantik-01

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## Leadership

### National Children's Science Congress, Government of India

Since 2017

- Academic committee member (Assam state)
- Responsibilities: Training to district level resource persons, selection of state level children scientist to the national level, guidance to selected state level children scientists to attend the national level
- Member invitee of the review and finalization committee for publication of National Children's Science Congress - Activity Guidebook 2018 & 2019: Published by the Assam Science Technology and Environment Council (ASTEC), on behalf of the National Council for Science and Technology Communication, Dept. of Science and Technology, Govt. of India [[http://www.astec.gov.in/ncsc/agb\\_full\\_2018\\_2019.pdf](http://www.astec.gov.in/ncsc/agb_full_2018_2019.pdf)].
- Member invitee of the review and finalization committee for publication of the National Children's Science Congress - Activity Guidebook 2020 & 2021: Published by the Assam Science Technology and Environment

Council (ASTEC), on behalf of the National Council for Science and Technology Communication, Dept. of Science and Technology, Govt. of India [[http://www.astec.gov.in/ncsc/agb2020\\_2021.pdf](http://www.astec.gov.in/ncsc/agb2020_2021.pdf)].

- Member invitee of the review and finalization committee for publication of the National Children's Science Congress - Activity Guidebook 2022 & 2023.

#### **Medini Foundation**

*Since 2017*

- Co-founder and Secretary
- Science communication in remote villages of the country, hands on training to students to aware them about agriculture and entrepreneurship, science communication centers in districts of Assam viz. Karbianglong, Nalbari, Baska etc. in collaboration with Food 4 Thought foundation

#### **Other**

- Involvement in **Science Popularization Programs** organized by **Gramya Vikash Mancha**, a not-for-profit organization
- Involvement in the study entitled "*Technology transfer through improvised cooking stove: A case study in the fringe villages of Manas National Park*" carried out as a part of project **Manas Tiger Conservation Program (MTCP)**, led by Aaranyak, a not-for-profit organization.
- Involvement in the project entitled "**Science and Technology Intervention in North East Region (STINER)**" implemented by Ministry of Development of North East (DoNER), Government of India.
- Project Appraisal Committee Member of RuTAG-IIT Guwahati since 2014.
- Member, **Centre Post Graduate Program Committee**, Centre for Rural technology, IIT Guwahati from 2016 to 2020.
- Member, Technical sub-committee, **All India Seminar on recent Trends in Mechanical Engineering**, The Institution of Engineers (India), Assam State Centre held on October 21-22, 2016.
- Member, Technical sub-committee, **All India Seminar on Rural Industrialization through Innovative Process Mechanization**, The Institution of Engineers (India), Assam State Centre held on June 08-09, 2019.

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#### **Honours /Awards**

- Awarded **Best Paper Award in Track** at the R&D Management Conference 2021, organized by the University of Strathclyde Glasgow, July 07-08, 2021.
  - Awarded **Best Paper Award** at the *Fore International Conference on Frugal Approach to Innovation*, organized by Fore School of Management, New Delhi on 13-14 December, 2019.
  - **Distinguished paper award** at the *7<sup>th</sup> International Conference on research into Design* held at Indian Institute of Science Bangalore, January, 2019.
  - Fellowship to attend 2<sup>nd</sup> edition Summer School Program for '**Future Leaders in Development 2015**' organized by *Indian Institute of Management Udaipur and Sanford School of Public Policy, Duke University, USA*.
  - Awarded **Best Paper Award** at *International Conference on Science and Innovative Engineering 2015*, Jawahar Engineering college, Chennai, Tamil Nadu, April 5, 2015
  - Selected as '**Change maker**' to join '**Global Action on poverty 2015**' held on 12- 13 March 2015 organized by **Head Held High Foundation** at Sabarmati Gandhi Ashram Ahmedabad, Gujarat.
  - Ministry of Human Resource Development, Government of India Ph.D. Scholarship during July 2014 to July 2019
  - Chief Minister of Assam **Merit Scholarship 2012** (Rupees one Lakh)
  - **Scholarship from Ministry of Development of North Eastern Region, Govt. of India** to attend Post Diploma in CAD/CAM (September, 2010 - March, 2011) organized by Indo Danish Tool Room, Jamshedpur
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### Invited Talks/workshops

- **Guest speaker** at [National Conference on Emerging Issues & Trends of Socio-Economic Development in Rural Economy](#) with Special Emphasis on Handloom and Handicraft Sector organized by ICFAI University Tripura, 27-28 February 2023.
- **Guest Speaker** at Workshop on [Frugal Innovation in Science, Technology, and Innovation Diplomacy](#), organized by Jawaharlal Nehru University, New Delhi, September 2022
- **Evaluator**, [Smart India Hardware Hackathon](#), 2022
- **Speaker**, State Level Resource Persons' Training Program for National Children Science Congress 2022, organized by Assam Science Technology and Environment Council, Assam, 24-26 August 2022
- **Guest Speaker** at Workshop on [Women Empowerment through Entrepreneurship: Opportunities and Challenges](#), NIT Silchar, 12-13 August 2022.
- Delivered the **Foundation Day Lecture** of the **Senior Engineers Forum**, North East region, Guwahati on 20<sup>th</sup> February 2021.
- Deliver a lecture on **Science Popularization** at the Sipajhar College as a part of Science Day program organized by **Sipajhar College Science Forum** on 02<sup>nd</sup> February 2021
- Delivered a speech on **Engineering for Sustainable Development** as the Guest of the Week of Rotary Club, South Guwahati on 20<sup>th</sup> November, 2020.
- Invited speaker at an awareness program under “**SANSKAR: Manuhe Manuhor Babe**” enunciated by the Government of Assam and organized by the Assam Science Technology and Environment council, Govt. of Assam on 07<sup>th</sup> November, 2020
- **‘Innovative idea for entrepreneurship’** at a Workshop on Entrepreneurship Development jointly organized by Barbhag College, Assam and Rajiv Gandhi National Institute of Youth Development, Ministry of Skill Development, Entrepreneurship, Youth Affairs and Sports, Govt. of India on 28-29 January, 2015.
- **Technology for self-employment and rural entrepreneurship-** an awareness program organized by The Institutions of Engineers (Assam State Centre) on 25<sup>th</sup> June, 2013.

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### Reviewer

#### Journal

- International Journal of Innovation and Technology Management
- Asia-Pacific Journal of Science and Technology

#### Conference

- 2022 IEEE 28<sup>th</sup> ICE/ITMC & 31<sup>st</sup> IAMOT Joint Conference IEEE, June 19-23, 2022 in France
- R&D Management Conference 2021, organized by the University of Strathclyde Glasgow, July 07-08, 2021.
- 3<sup>rd</sup> International Workshop on Environment and Geoscience (IWEG 2020) held during July 18-20, 2020 in Chengdu, China.
- 2019 International Conference of IEEE Technology and Engineering Management Society (TEMSCON 2019) held at GTRI Conference Centre, Atlanta, Georgia (USA), June 11-14, 2019.

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### Professional membership

- Associate member of The Institution of Engineers (India).
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