



Insight 2018

Research Scholars' Day





Memories





About School



Rajendra Mishra School of Engineering Entrepreneurship (RMSoEE) was established at Indian Institute of Technology Kharagpur in the year 2010. The school aims to encourage the entrepreneurial minds and imparts strong entrepreneurial culture and ecosystem for venture creation and early start-ups. It is a revolutionary step forward by integrating the academic and practice aspects of entrepreneurship education. The school offers a 5 year integrated dual degree with M.Tech in Engineering Entrepreneurship and B.Tech in engineering discipline. The students selected through JEE for B.Tech or dual degree M.Tech in any engineering department can opt for this program from their second year of study according to department change over rules. This unique school for the first time provides the opportunity for engineering undergraduate students to design product while pursuing their academic degree during entire period of study (5 years) for dual degree. Students who major in entrepreneurship are exposed to new venture creation through which they gain understanding of process pertaining to skills, knowledge and experience required to become successful entrepreneur. The school offers unique curriculum which has been designed to give students an opportunity to develop their own creative skills thereby applying principles of engineering management, marketing and finance to the challenges of starting new business, growing and managing business towards scalability. The school is equipped with innovation lab for ideation and innovative thinking from second year onward. The various funding structure available in the entrepreneurial ecosystem at IIT Kharagpur provides flexibility to students for building and testing their prototypes. Spearheaded by number of fellows and doctorates from leading institutes and universities amongst its faculty, the school also runs a vibrant Doctoral/ MS Program aimed to bridge intellectual gaps in relevant interdisciplinary studies related to innovation and entrepreneurship literature. It enriches the value of knowledge, technology intervention and transfer, and overall ecosystem development for innovation and entrepreneurship.





भारतीय प्रौद्योगिकी संस्थान खड़गपुर
खड़गपुर-७२१ ३०२
Indian Institute of Technology Kharagpur
Kharagpur – 721302

प्रोफेसर पार्थ पी. चक्रवर्ती एफएनए, एफएएससी, एफएनई
निदेशक

Prof. Partha P. Chakrabarti, FNA, FASc, FNAE
Director
Professor, Department of Computer Science & Engineering

March 21, 2018

Message

It gives me an immense pleasure to note that Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur is celebrating its Research Scholars' Day. I am glad to see that souvenir is being published on this occasion. This endeavour would facilitate knowledge sharing and discussion for creating an indispensable link between academic and practical aspects of entrepreneurship.

Being a premier technical institution in India, IIT Kharagpur is dedicated to carry forward the technology education and research to a peak level around the world in a sustainable and inclusive manner. I am sure the deliberations held will immeasurably help the various professionals who will participate in this knowledgeable event. I wish the organisers and the participants a grand success. The research work and discussion in this direction would be a catalyst for attaining the goal of alleviating societal problems through technological and managerial intervention.

I congratulate the School for providing a platform to exchange ideas through this celebration. I have no doubt that the ideas evolved during this event will provide better insights for setting future research directions and applications in real scenarios. I am sure this will be a milestone in ensuring the highest standards in this profession. The galaxy of expert present will enormously benefit young researchers.

I wish the Research Scholars' Day a great success.

Partha P. Chakrabarti

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FROM PATRON'S HEART

Devendra Mishra

Adjunct Professor, Decision Sciences & Marketing,
Graziadio School of Business & Management, California
Founder of Media & Entertainment Alliance (MESA),
Hollywood IT Society (HITS) and
Biotech Supply Chain Management Alliance (BSMA)



The Dandi Path to Innovation!

On the occasion of the 6th Research Scholars' Day, I wish to convey the inspiration I received from reading Walter Isaacson's epic about Leonardo Da Vinci, where he wrote, "His creativity, like that of other great innovators, came from standing at the intersection of the humanities and technology. He peeled flesh off the faces of cadavers, drew the muscles that move the lips, and then painted history's most memorable smile on Mona Lisa. He explored the math of optics, showed how light rays strike the cornea and produced illusions of changing perspectives in The Last Supper." I believe this kind of experiential approach is required to deploy "Technology and Entrepreneurship for Rural Development" where the ultimate potential of the dweller and farmer of the village is unleashed. Such a Gandhian approach, tempered with technology, will yield universal development of India. The subject is particularly relevant to me because our father, the late Professor Rajendra Mishra, was the first generation learner from the village of Haripur in Bihar who would have rekindled the fire of entrepreneurship at this Day of the Scholars.

Please remember, as you make connections across disciplines of science, engineering, technology, arts and humanities, you will generate innovation, imagination and genius. Let your imagination be wild, your curiosity passionate and creativity unbridled so that the hard work produces an intellectual property to better our society.

This is your journey, your destiny! Reach out to the other departments and schools of IIT in the conception, construction, testing, implementation, legal protection and commercialization of the intellectual property, the fruit of your scholarship.

Devendra Mishra

Fellow KGPian (1966)





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Indian Institute of Technology Kharagpur
Kharagpur-721 302, India

Dr. P. K. Das, FNAE, FNASc

Dean, Postgraduate Studies and Research

Professor, Department of Mechanical Engineering

Date: March 21, 2018

Message

I am extremely delighted that Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur is organising its Research Scholars day on 4th April 2018 and that a souvenir is being published on this occasion.

It is of great significance that this event is going to be thoughtful on several important topics, exploring miscellaneous areas of "Technology & Entrepreneurship for Rural development". Undoubtedly this year too, the day will be observed with equal enthusiasm and passion by students, who would take this opportunity to demonstrate their latest findings and to exchange ideas of research, development, and knowledge among the different research groups.

I heartily congratulate them all for their effort and wish the event a grand success.

Prasanta Kumar Das

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खड़गपुर - ७२१ ३०२, भारत
Indian Institute of Technology Kharagpur
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Prof. Satyahari Dey
Professor, Dept. of Biotechnology
Professor-in-charge, Incubation and Entrepreneurship Programs, S.R.I.C
Managing Director, Science & Technology Entrepreneurs' Park
Indian Institute of Technology, Kharagpur

MESSAGE

It gives me immense pleasure to know that Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur is celebrating 6th Research Scholars' Day on 4th April, 2018.

Rajendra Mishra School of Engineering Entrepreneurship has established itself as one of the best centres for entrepreneurial technology based research and education. The faculty and students of the school carry out cutting-edge research in a wide spectrum of areas covering a range of inter-disciplinary subjects.

The "Research Scholars' Day" of the school provides a perfect opportunity to showcase the research work carried out by our post-graduate students, and also provides a platform for deliberations and discussions, both within the department as well as with the larger academia. The Research Scholars should work with enthusiasm to evolve R&D programs for Invention, Innovation and Translation that will add further significance to the esteem and glory of IIT Kharagpur.

My best wishes to the scholars for this endeavour and I wish them great success!

Prof. Satyahari Dey

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FROM HEAD'S DESK





FROM RESEARCH COORDINATOR'S DESK

Rajendra Mishra School of Engineering Entrepreneurship was established in 2010 to stimulate research in all aspects of innovation, enterprise and entrepreneurship development. Its scope covers a variety of contexts, including product modelling, product design and fabrication, computer vision and robotics, data analytics, healthcare management, energy systems, recycling & waste management, entrepreneurial leadership, entrepreneurial finance, social entrepreneurship and cultural heritage. Currently the school has around 40 research scholars with five scholars graduated successfully and some waiting to be awarded with their doctoral degree in the forthcoming convocation. Research Scholars Day of Rajendra Mishra School of Engineering Entrepreneurship had its humble commencement in 2013 and since then each year, the research community of the school celebrates its love for research and all that it represents, by organising Research Scholars Day, one of the premier research fests of IIT Kharagpur. This year, the school is going to organise its sixth Research Scholars' Day on 4th April. The Day is intended to honour and celebrate research by our research Scholars. The day showcases faculty-mentored student work and allows students in all disciplines to recognize and appreciate each other work through oral and poster presentations. It promotes a strong student-faculty interaction.

The theme of Research Scholar Day 2018 is "TECHNOLOGY & ENTREPRENEURSHIP FOR RURAL DEVELOPMENT" focusing on the connections between entrepreneurship, innovation and rural economic development. Scholars are going to take different aspects of rural problems or needs, deep dive it and come up with exciting solutions. The Day will be hosting some amazing personalities, both from industry and academia that are changing the world through their innovations and path breaking work in fields of their excellence. I wish the Research Scholars' team success with a hope to take Research Scholars' Day to the next level.





THE GURUS

PARTHA PRATIM DAS

PRANAB KUMAR DAN

BASAB CHAKRABORTY

BHASKAR BHOWMICK

MANOJ KUMAR MANDOL

PRABHA BHOLA

RAM BABU ROY

TITAS BHATTACHARJEE

MAMONI BANERJEE





Name: Partha Pratim Das

Designation: Professor, Head

Profile

- Taught at the Department of Computer Science and Engineering, IIT Kharagpur from 1988-98.
- Worked as Business Development Manager, Alumnus Software Ltd (1998-2001) and as Senior Director, Interra Systems, Inc. (2001-11).
- Joined the Department of Computer Science and Engineering, IIT Kharagpur as Professor in 2011.
- Served as a Visiting Professor with Institute of Radio Physics & Electronics, Calcutta University (2003-2012)
- Published widely in areas of Digital Geometry, Image Processing, Parallel Computing and Knowledge-based Systems
- Served International Conference on VLSI Design & Embedded Systems, as General Co-Chair in 2005 and Program Co-Chair in 2016. Also served as Organizing Chair for International Symposium on VLSI Design & Test, 2007
- Joint Principal Investigator of National Digital Library project of MHRD.
- A core team member for the upcoming Technology Park of IIT Kharagpur at Rajarhat, Kolkata.
- Member of IEEE, ACM, IUIAPR and VLSI Society of India and works as a Review
- Writer for ACM Computing Surveys and is a reviewer for Pattern Recognition Letters.

Accolades

UNESCO/ROSTSCA Young Scientist Award (1989), INSA Young Scientist Award (1990), Young Associate-ship of Indian Academy of Sciences (1992), UGC Young Teachers' Career Award (1993), INAE Young Engineer Award (1996), Interra 5 Years' Tenure Plaque (2007), Interra Special (Process) Recognition (2009).

Research Interests

Entrepreneurship Promotion, Image Processing, Software Engineering, Technology-Enabled Education, and Digital Heritage





Name: Pranab Kumar Dan

Designation: Associate Professor

Profile

- Member - Organizing committee of AIMTDR International Conference 2014.
- International Program Committee, ICoRD'17 (International Conference on Research into Design, 2017) and ICoRD'19 (International Conference on Research into Design, 2019)
- Chaired technical sessions in seminar and workshop organized by the Production Engineering Department, Jadavpur University, and Confederation of Indian Industries (ER).
- Fmr Member of the Manufacturing, Technology and Innovation Committee (CII-ER).
- Fellow of The Association of Engineers, India.
- Senior Member of the Indian Institution of Industrial Engineering.
- Chairman, Entrepreneurship Cell at IIT Kharagpur.
- Member of Education & Skills Development committee of CII, Eastern Region
- Fmr Member on the Expert Committee on Education, Training and HR Initiatives of Indian Chamber of Commerce

Research Interests

- Product Development and Manufacturing





Name: Basab Chakroborty

Designation: Assistant Professor

Profile

- He joined the institute in January 2013
- Prior to that, he was involved in the development of new cost effective and energy efficient chemical process for the manufacturing of lead acid batteries for fourteen years
- Was instrumental in forming the Research center and spearheaded basic research on the frontiers of electrochemistry and material science to evolve cost effective new materials suitable for the improvement of the bottom line
- Transformation of the research outputs into commercial products was the major achievement
- Presently working on Integration of Renewable sources of Energy in Smart Energy distribution network, Energy Storage systems, Waste heat utilization and e-waste management
- Principal Investigator of several Government sponsored research projects on new energy materials and energy storage
- Co-Principal Investigator of several MHRD funded infrastructure development projects at IIT Kharagpur
- Co-Principal Investigator of several Projects related to Promoting Innovations, Start-ups and facilitating incubation
- Engaged as a consultant to Amara Raja Batteries Ltd.
- Published more than 15 papers in international peer reviewed journals of repute along with several international conference
- Has one international patent which has been commercialized

Research Interests

Energy Science & Management, Development of New Material for Energy Research, e-vehicles





Name: Bhaskar Bhowmick

Designation: Assistant Professor

Profile

Editorial Roles

- Reviewer, Strategic Entrepreneurship Journal (Wiley)
- Member, Review Board: Amity Journal of Entrepreneurship (AMITY UNIV)
- Member, Editorial Advisory Board: Research Insights (IGI)
- Member, Editorial Board: Retail and Marketing Review (UNISA)
- Reviewer, Pan IIM Conferences.
- Reviewer, E-Entrepreneurship and Innovation (IGI Global)
- Member, Editor Advisory Board on Competitive Strategies for Academic Entrepreneurship: Commercialization of Research-Based Products.

Industry Experience

- Has worked for 13 years in the industry for Product development, Marketing, and Managing Businesses.
- Has experience of entrepreneurship in launching small units within the multinational company folders.

Publication

Has published Book Chapters, Cases, and Research Papers in National and International journals and conferences.

Projects

Currently working on a Sponsored Project on “Technology Incubation and Development of Entrepreneurs” (TIDE), “Prime Minister Yuva Yojana” (PMY), “Techno-entrepreneurial leadership: success, sustenance and succession issues in Indian MSMEs”.

Research Interests

Entrepreneurial Environment and Leadership, Technology and Sustainable Development, Innovation Ecosystem





Name: Manoj Kumar Mondal

Designation: Assistant Professor

Profile

- Worked in multiple industries including banking. Teaching entrepreneurship, product innovation and design, and financing new ventures. Filed several patents and some of the social innovations have been adopted by rural artisans.
- Received Gold Medal (2008) from Lockheed Martin through competition organized in association with University of Texas at Austin, Stanford University, FICCI, DST
- Member of the team receiving Gold Plaque and Cash award (2014) from the Ministry of Chemicals & Fertilizers for the best innovation that evolved out of a sponsored project executed at Materials Science Center, IIT Kharagpur
- Received financial award from the Department of Scientific and Industrial Research (DSIR) under the TechnoPreneur Pro-motion Program (TePP) for refinement of a technology (2009).
- Received financial award from the Technology Information, Forecasting and Assessment Council (TIFAC) under the program of Technology Refinement and Marketing Programme (TREMAPP) (2011)
- Take special interest in mentoring budding entrepreneurs. Mentored several spinoff start-ups out of IIT Kharagpur, some of which (for example, www.nucleodyne.com) are making global footprint.

Research Interests

Financial Economics, Banking, Product Development, Entrepreneurship





Name: Prabha Bhola

Designation: Assistant Professor

Profile

- Working as Assistant Professor at Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur
- Formerly served as Assistant Professor in IIT (ISM) Dhanbad. Also served as a Guest Lecturer in Hyderabad Central University and Visiting Faculty in Narsee Monjee Institute of Management Studies, Hyderabad
- Her area of specialization is Economics with current research interests in the field of Entrepreneurship
- Has published a book, entitled 'Rural Poverty and its Determining Factors: An Empirical Analysis of Districts in Uttar Pradesh, India' by LAP AG & Co. KG, 2010
- Conducted numerous training programmes such as faculty development and technology based entrepreneurship development programmes
- Co-ordinated Data Science Lab for PGDBA program and PM-YUVA Yojana for empanelment of IIT Kharagpur as Nodal E-Hub
- As OSD at STEP, IIT Kharagpur, she was entrusted with managing the technology and innovation related projects and working along with its network partners
- Has strong analytical and quantitative aptitude with high exposure to application of statistical techniques and usage of statistical packages like STATA, SPSS, AMOS

Research Interests

Quality Management and Modelling Performance Measurement, Business Analytics, Technology and Innovation Diffusion, Entrepreneurship & Poverty, Sustainability





Name: Ram Babu Roy
Designation: Assistant Professor

Profile

He is a Fellow of Indian Institute of Management Calcutta (IIMC), India. His areas of specialization are Management Information Systems and Operations Management, Masters of Technology in VLSI Design Tools and Technology from Indian Institute of Technology Delhi (IIT-D), India. Master of Science in Physics from Indian Institute of Technology Kanpur, India. Has served as a scientist in Aeronautical Development Establishment, Defence Research and Development Organization, Bangalore and was involved in the applied research towards the design and development of Micro Air Vehicles (MAV) and Radar Absorbing Materials (RAM). Delivers lectures in Executive MBA and Faculty Development Programmes. Associate Member of the Institution of Electronics and Telecommunication Engineers (IETE). Reviewer of European Journal of Operations Research. Reviewer of International Conference on Information Systems & European Conference on Information Systems.

Research Interests

Big Data and Business Analytics, Healthcare Operations Management, Complex Networks, Healthcare Analytics.





Name: Mamoni Banerjee

Designation: Assistant Professor

Profile

Prof. Mamoni Banerjee is doctorate in Agricultural Science. She served different organizations; State Bank of India, Indian council of Agricultural Science, Indo-French Centre for promotion of Advanced Research. Her research interests are in Phytochemicals, Bio pesticides, Pesticide bio-efficacy study, Rural Technology Development for entrepreneurship etc. She has one project i.e., "Development of plant Extract Based Formulations from Locally Available Plants for Utilization Under Sustainable Pest". She is member of Indian Science Congress Association.





Name: Titas Bhattacharjee

Designation: Assistant Professor

Profile

- Research Scholar Co-ordinator of RMSOEE, IIT Kharagpur
- Mentor – Neoleap Business Ventures LLP
- Reviewer of National and International Peer-reviewed journals
- Editor of Amity Journal of Entrepreneurship
- Active Member of Faculty Development programmes conducted by IIT Kharagpur.
- Professional trainer in accounting and related areas for taking Guest Lectures in Government organisations and private business schools.
- Has been awarded the Fellowship in Finance & Control area from Indian Institute of Management, Calcutta (IIMC) in 2012.

Research Interests

- Corporate Governance, Corporate Financial Reporting, Entrepreneurial Finance, Corporate Social Responsibility.





OUR ALUMNI

PARTHA MUKHOPADHYAY

RANA BASU

SUSHMITA GHOSH

AMRITA

JAGRUTI THAKUR





Name: Partha Mukhopadhyay
Contact: The College of Optics and Photonics (CREOL),
 University of Central Florida, Orlando, FL, 32816, USA
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Profile

Partha Mukhopadhyay has awarded his PhD thesis on “Epitaxial Growth Optimization of III-Arsenide and III-Nitride on Silicon: Influence of Buffer on MODFET for Low Cost Power Amplifier”, from Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur. He received his Master of Science (by Research) in Semiconductor Devices from Dept. of E&ECE, IIT Kharagpur in 2010 and B. Tech in ECE from Kalyani Government Engineering College in July, 2003. He has prior company expertise and research experience before joining MS-PhD at IIT Kharagpur on 2007.

He joined CREOL (The College of Optics and Photonics), University of Central Florida, Orlando, USA, in 2015 as a research scientist. Presently, he is working on epitaxial growth and fabrication of β -Ga₂O₃ (Gallium Oxide) based Solar-blind (deep UV) photodetector.

Research

Area of Research in PhD

Epitaxial growth of Compound Semiconductor based Heterostructure Device for High Power Devices and UV as well as Infra-Red Optoelectronic Devices

Research Area

The development of solar blind photodetectors: epitaxial growth by MBE and fabrication of metal-semiconductor-metal diodes.

He has published 24 research articles in peer-reviewed journals, more than 25 indexed conference proceedings and more than 100 citations,

Publications

- Tin-gallium-oxide-based UV-C detectors, P Mukhopadhyay, M Toporkov, WV Schoenfeld - Oxide-based Materials and Devices IX, 2018
- OFF-State Leakage and Current Collapse in AlGa_N/Ga_N HEMTs: A Virtual Gate Induced by Dislocations, Saptarsi Ghosh, Subhashis Das, Syed Mukulika Dinara, Ankush Bag, Apurba Chakraborty, Partha Mukhopadhyay, Sanjay Kumar Jana, Dhrub Biswas- IEEE Transactions on Electron Devices, 2018
- Elimination of V-shaped pits in InGa_N/Ga_N/Al_N/Ga_N heterostructure by metal modulation growth technique, Apurba Chakraborty, Ankush Bag, Partha Mukhopadhyay, Saptarsi Ghosh, Dhrub Biswas, Semiconductor Science and Technology, 2018
- Fast growth rate of epitaxial β -Ga₂O₃ by close coupled showerhead MOCVD, F Alema, B Hertog, A Osinsky, P Mukhopadhyay, Mykyta Toporkov, Winston V Schoenfeld, Journal of Crystal Growth, 2017





Name: Rana Basu
 Designation: Assistant Professor, IEST Shibpur
 Contact Info: rbasu004@gmail.com

Profile

Rana Basu earned his PhD from Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur in 2016. Presently he is working as assistant professor in the School of Management Sciences, IEST Shibpur. His teaching and research interests are in the area of operations management, quality and environmental management system.

Research

Area of Research:

- Operations Management
- Quality and Environmental Management System
- Lean Management

Courses Undertaken at PG Level:

- Production and Operations Management
- Computer Applications in Management
- Management Information Systems
- Marketing and Market Research

Publications

Basu, R., and Bhola, P. (2016) "Impact of Quality Management Practices on Performance Stimulating Growth: Empirical Evidence from Indian IT enabled Service SMEs", International Journal of Quality and Reliability Management, Vol 33 (8), pp 1179 – 1201

Basu, R., and Bhola, P. (2016) "Integrating Fuzzy MCDM Methodology to Investigate Quality Management Practices in Indian Digital Service SMEs", International Journal of Services and Operations Management, Vol 25 (2), pp 173 – 205

Basu, R., and Bhola, P. (2015) "Exploring Quality Management Practices and its Pattern Analysis in Indian Service SMEs", Journal of Enterprising Culture, Vol. 23 (2), pp. 199-235

Basu, R., and Bhola, P. (2014) "A Framework to Identify Service Quality Determinants of IT Enabled Scalable Ventures: A Study from Indian Context", Journal of Information and Knowledge Management, Vol. 13 (4), pp. 1-14





Name: Sushmita Ghosh
 Supervisor: Dr. Bhaskar Bhowmick
 Contact Info: susmita.gh@gmail.com

Profile

Susmita completed her MS degree in RF and Microwave from IIT Kharagpur in 2009. She completed her B. Tech in Electronics & Telecommunication Engineering from BPUT, Orissa. She has worked as Lecturer from August 2008 to May 2010 at GITAM. She joined the department in July 2011.

Research

Recognition and Response to perceived environmental uncertainty: A study in Indian Start-up context

Decision maker of big or small firm has to deal with dynamic business environment, complex environmental components, insufficient information regarding these components, inability to predict the effect and outcome of incorrect decision on an organization along with inability of predicting the effect of the complex environmental factors on the firm's output. These challenges of unpredictability have always existed, but they are still difficult to solve, understand and predict due to complexity and dynamism of environmental components. This suggests rechecking the scale in Indian start-up context. An additional problem was that, due to lack of strategic resources in start-ups, they are left with narrower options for strategic choices to cope with uncertainty. This requires addressing the limitation. The results obtained can be utilized for better start-ups decision making and also for developing the incubation systems.

Publications

Sensing Uncertainties in Internal Environment: A Study on Start-ups in India, by Ghosh, S. & Bhowmick, B, Procedia, 35th Annual International conference, Strategic Management Society (SMS), pg. 98, October, 2015

Uncertainties in Entrepreneurship Climate: A Study on Start-ups in India by Ghosh, S. & Bhowmick, B. Procedia - Social and Behavioral Sciences, Elsevier, 150 (46-55), 2014

Technological Uncertainty: Exploring Factors in Indian Start-Ups by Ghosh, S. & Bhowmick, B. Global Humanitarian Technology Conference, IEEE, 2014

Perceived Environmental Uncertainty for Start-ups: A Note on Entrepreneurship Research from an Indian Perspective by Ghosh, S., Bhowmick, B., & Guin, K. K. Technology Innovation and Management Review. 4(8), 2014.

Developing and Evaluating a New Scale for Product Positioning Uncertainty in India by Ghosh, S. & Bhowmick, B. International Journal of Scientific and Engineering Research, 5(1), 552-559, 2014





Name: Amrita
 Supervisor: Prof. Ram Babu Roy
 Contact: iamthealchemist@gmail.com

Profile

Amrita has completed her Ph.D. in 2017 from Rajendra Mishra School of Engineering Entrepreneurship at IIT Kharagpur. She has completed her Masters of Science (M.S.) and Post Graduate Diploma in Business Administration (P.G.D.B.A.) from Vinod Gupta School of Management, IIT Kharagpur. Prior to this, she earned the Bachelor of Engineering in Computer Science from VTU.

Research

Knowledge Management in Healthcare

Knowledge has been considered as the enabler to strive in the strong competitive world. It is the unique component to create niche all throughout the organization processes and strategies to overcome any failures. KM strategy is important in the healthcare domain for reducing cost and saving time by correct decision making. KM in healthcare perspective, caters to the knowledge required for correct and timely decision making by the medical practitioners and the healthcare managers.

Publications

Amrita., Banerjee I., and Roy R. B. (2016) Redesigning Knowledge Flow Network for Maternity Care. Book Chapter In: Nigam S and Agarwal S (eds), Innovative Management Solutions for Competitive Advantage, New Delhi: Excel India Publishers, pp. 129–142.

Amrita., and Roy R. B. (...) Who Do the Women Trust for Maternity Care: A Knowledge Network Study in Rural India, Health Information and Management Journal, Sage Publications (Second Revision)

Amrita., and Roy R. B. (2015) Integrating Knowledge, Attitude and Practice in Decision Model for Maternity Care in Emerging Economy. IEEE Xplore DOI: 10.1109/GHTC.2015.7343957





Name: Jagruti Thakur
 Supervisor: Prof. Basab Chakraborty
 Contact: jagruti.t@iitkgp.ac.in

Profile

Jagruti graduated from South Gujarat University with majors in Electronics and Communication. She joined the Department in 2013. She is a BASE (Bhaskar Advanced Solar Energy) 2016 internship recipient, rendered by Indo US Science and Technology Forum (IUSSTF). She was awarded POSOCO Power System Awards PPSA 2017, Government of India (GOI) for her doctoral thesis.

Research

Smart Grid

Smart grid is the modernization of present day power grid. A number of issues lie with the present GTD (Generation, transmission and Distribution) of electricity and a need is created for the restructuring of the grid. Her research involves addressing the demand side management associated with implementation of Automated Metering Infrastructure (AMI) in Indian context. The study is focused on exploring the impact of increased renewables on small smart metered consumers in India.

Publications

Thakur Jagruti, and Chakraborty Basab. "Intelli-grid: Moving towards automation of electric grid in India." *Renewable and Sustainable Energy Reviews* 42 (2015): 16-25.

Thakur Jagruti, and Chakraborty Basab. "A study of feasible smart tariff alternatives for smart grid integrated solar panels in India." *Energy* 93 (2015): 963-975.

Thakur Jagruti, and Chakraborty Basab. "Demand side management in developing nations: A mitigating tool for energy imbalance and peak load management." *Energy* 114 (2016): 895-912.

Thakur Jagruti, et al. "Exploring the impact of increased solar deployment levels on residential electricity bills in India." *Renewable Energy* 120 (2018): 512-523.





RESEARCH SCHOLARS

Sharad Kumar

Pradipta Chandra

Sreekanth V.K.

Sonal Singh Hukumpal

Arpita Das

Mohd. Zuhaïr

Bipul Krishna Saha

Priyanka Laha

Sayani Mondal

Jignesh Singh Sindhay

Piyush Kr. Dongra

Bishnu Pada Bose

Sireesha Tamada

Manali Chatterjee

Manish Chandra

Aashish Kumar

Sanyka Banerjee

H.B. Girija Sankar Bhuniya

Saurabh Singh Thakur

Sourabh Mondal

Debraj Bhattacharya

Jayshree Patnaik

Shibabrata Banerjee

Manojit Ray

Abhijit Debnath

Ragavi. R

Harshit Vallecha

Arghya Adhya

Sumit Kr. Biswas

Bijitaswa Chakraborty

Gurunath Reddy M

Pravanjan Samanta

Akanksha Jaishwal

Indrasekhar Sengupta

Richa Malviya

Saikat Nandi

Rosalin Sahoo

Sunil Kumar Pradhan

Prasenjit Patra

Karri Naveen





Name: Sharad Kumar
 Supervisor: Prof. Ram Babu Roy
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Profile

Sharad kumar has completed his Master of Technology in 2009 from Maulana Azad National Institute of Technology-Bhopal and B.E. in Computer Science and Engineering in 2006 from Sri Satya Sai Institute of Science and Technology-Sehore affiliated to Rajiv Gandhi Proudhyogiki Vishwavidyalaya-Bhopal, Madhya Pradesh. He worked as a Senior Research Fellow in project entitled "TBI" at IIT Kharagpur. His research interest lies in Public Health, Prevention Science, Modeling and Simulation of Healthcare systems.

Research

Planning Interventions for Preventing Cardiovascular Diseases in India

Cardiovascular diseases (CVDs) are the largest cause of death and disability in India. The global burden of disease study estimated two fold premature CVD deaths in India as compared to developed countries. The burden of CVD is increasing and moving towards younger age group. A large proportion of younger deaths lead to adverse impact on nations' productivity. Growing burden of CVDs has been mostly attributed to behavioural and metabolic risk factors. Prevalence of risk factors are increasing and it has been directly associated with the severity of CVD in population. Lifestyle and behaviour plays important roles in increasing the CVD incidences where dynamics over time are vital. Majority of CVDs can be averted through practicing healthy lifestyle. Presently, there has been limited information available on the lifestyle interventions and their impact on population health in India.

This research aims to provide a framework for exploring various preventive strategies for CVD management in India. A system dynamics (SD) modeling approach have been used to determine best public policy on preventive care intervention under resource constraint environment. Using simulations experiment, different policies can be evaluated by using the 'what if' analysis, with the aim to evaluate the relative effectiveness of public policies on preventive care interventions. It can provide insights into implications of various decisions and helps us in identifying the best one for improving the existing system. This research work would help policy makers in effective and efficient decision making on preventive care for CVDs. The proposed framework can be extended for other communicable and non-communicable diseases with appropriate modifications.

Publications

Kumar, S., Roy, R. B. (2017)., Public health impact of raising the legal age of smoking in India', XXI Annual Conference of North Zone Indian Association of Preventive and Social Medicine (NZ IAPSM-2017), PGIMER Chandigarh, India, November 2-3, 2017 (Awarded with First Prize under Prevention/Policy/Disease category).





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Profile

Pradipta Chandra has joined the Ph.D programme in Rajendra Mishra School of Engineering Entrepreneurship (RMSoEE) in the year 2012. He is awarded the prestigious MS (by research) degree from Materials Science Centre, IIT Kharagpur after development of an innovative rubber coating composition and process for coating on jute fiber and has a proven track record as a process engineer with sufficient expertise in the field of polymers, plastics and natural composites leading to the products in safety items, electronics, water, agriculture, medical etc. for more than eight years and has a passion of job creator. He was associated with the various successful innovation projects sponsored by Govt. of India. His present research work, on the capacity development of Indian farmers, has received international appreciation as a breakthrough interdisciplinary work on the humanitarian ground.

Research

Capacity Development of Indian Farmers through Technology Transfer: Exploring Challenges and Redesigning Options

Demand of food grains has been rising exponentially in the last few decades because of which the top most priority has been put to the agriculture sector, especially in the agro-based economy like India. Literature says that about 85% percent farmers in India come under small and marginal category. Building the capacity of Indian farmers is ever-challenging concern. Although role of agricultural technology is inevitable to improve the situation, issues related to the technology adoption are questionable in Indian agriculture. Literature reveals that there are many barriers behind the non-adoption of technology. The present study is first of its kind in India to identify the key factors related to challenges in technology transfer training (TTTC) in agricultural sector, to establish the mutually exclusive and collectively exhaustive dimensions of capacity building factors of small and marginal farmers and to categorise the redesigning need of the resource deployment that eventually can enhance the capacity of those farmers by overcoming the barriers related to TTTC. In this cross-sectional survey research both qualitative as well as quantitative data were collected. Various results from exploratory factor analysis (EFA) and regression analysis indicate that mere higher production does not assure higher profit to the farmer; there are many reasons which contradict the yield-oriented agricultural development. An important finding is the qualitative deterioration of agricultural production process to meet quantitative target of yield. The study has unfolded various dichotomies of resource designing in agricultural ecosystem. The study will help in redesigning the resource deployment mechanism towards sustainable agriculture which is the major contribution of this research.

Publications

- Chandra, P., Bhattacharjee, T. and Bhowmick, B. (2016). Does technology transfer training concern for agriculture output in India? A critical study on a lateritic zone in West Bengal. Journal of Agribusiness in Developing and Emerging Economies (JADEE). (Accepted)
- Chandra, P., Bhattacharjee, T. and Bhowmick, B. (2015). Do Knowledge Deficiency Factors Steer Agricultural Extension? Institutional Evidence from Red Lateritic Zone in India. International Journal of Tropical Agriculture (IJTA), 33(4): pp. 3025-3029.
- Chandra, P., Bhattacharjee, T. and Bhowmick, B. (2017). Is It Crucial to Upgrade the Extension System for Capacity Development of Farmers? Learning from Dry-Lateritic Zone in India. Chapter 26, Agricultural Extension: Techniques and Applications. Biotech Books, New Delhi, India, pp. 217-228.
- Chandra, P., Bhattacharjee, T. and Bhowmick, B. (2016). Perspective of Precision Agricultural Technology in Lateritic Zones of West Bengal: Role of KVKs and Farmers' Clubs. Section II: Natural Resource Engineering and Management, Precision Farming and Resource Management. Excel India Publishers, New Delhi, India, pp. 177-194.





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Profile

Sreekanth is pursuing his doctoral program in Engineering Entrepreneurship from IIT Kharagpur. Prior to this endeavor, he has been working with M/s. Infosys Limited., India for about 5 years. During this period he has been through the major life cycles of Software Development and attained a good exposure to the Equity Finance Domain. In addition to that, he has been a part of Education & Research Department, the innovation hub of Infosys. He completed his M.Tech in Systems Analysis and Computer Applications from NITK Suratkal and B.Tech in Electrical and Electronics Engineering from Mahatma Gandhi University, Kerala. His tryst with knowing the world drives his career. He is a constant and fast learner and he believes in idea of growing by sharing knowledge and ideas.

Research

Decision Modeling in Healthcare Value Chain

Emergency Medical Services (EMS) provide out-of-hospital medical care and transport patients to hospital. The primary aim of EMS is to save lives. EMS plays a crucial role in nation's healthcare service provision and in turn affects the economy. Thus the governments usually fund the EMS as a public service. But EMS in many countries fail to capture the subtlety of service production, for example, the co-creation with customer participation, effectively. Apart from engaging the customer for co-creation the service providers have to design and develop the support actions in the system such as demand forecasting, deploying ambulances, routing, scheduling and rostering of crew, and others. This research will give better insights of existing EMS system that in turn will help in redesigning the service provision. We are exploring the possibilities of improving the service provision by data-driven resource allocation and scheduling decisions.

Publications

- Sreekanth V K, Ram Babu Roy, "Equity-Constrained Dispatching Models for Emergency Medical Services", Team Performance Management, Volume 23, Issue 1/2
- Sreekanth V K, Ram Babu Roy (2016), "Predicting Emergency Medical Service Demand Using Time Series Modeling", Chapter 7, Trends in Operations Management: Perspectives and Challenges, Bhimaraya Metri, A. K. Singh (eds.), Excel India Publishers, New Delhi, pp. 57 - 68
- Sreekanth V K, Ram Babu Roy, Paul M. Lillrank, "Configuring Service Production Function for Emergency Medical Services", INFORMS Healthcare 2017, July 26-28, 2017, Rotterdam, Netherlands
- Sreekanth V K, Ram Babu Roy, Paul M. Lillrank, "Designing Service Machine For Emergency Medical Services", INFORMS Annual Meeting 2016, November 13-16, 2016 at Nashville, TN, USA.
- Sreekanth V K, Ram Babu Roy, "Modeling Demand Patterns of Emergency Medical Services in Rajasthan", International Conference on Systems in Medicine and Biology (ICSMB) 2016, January 04-07, 2016 at Indian Institute of Technology Kharagpur, India.
- Sreekanth V K, Ram Babu Roy, "Equity-Constrained Dispatching Models for Emergency Medical Services", The Society for the Study of Artificial Intelligence and Simulation of Behaviour (AISB) Workshop on 'Agent-Based Models of Bounded Rationality' May 07-08, 2015 at the University of Southern Denmark, Slagelse, Denmark.





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Profile

Singh Sonal H. is a Ph.D. Research Scholar in Rajendra Mishra School of Engineering Entrepreneurship at IIT Kharagpur. She received B.Tech in Dairy Technology and M.B.A in Agri-Business Management from Anand Agricultural University, Gujarat.

Research

Developing Framework on Grassroots Innovation for Entrepreneurship Development in Indian Context

Innovation is recognized as one of the most important aspect for economic development of a nation. The traditional approach of grassroots innovation is top-down one, in which the population at the BoP (Base of the Pyramid) could represent for business in the form of new potential consumers. However, these grassroots innovators can be a potential source of new ideas, knowledge and innovation. Majority of grassroots innovators face the problem of poverty and unemployment. The promotion and development of entrepreneurship at grassroots level are a new and increasingly become a popular approach to economic development. On the other hand, all the grassroots innovation is not leading to entrepreneurship development. This research tries to conceptualize measures of grassroots innovation and develop a framework on grassroots innovation for entrepreneurship development in Indian context.

Publications

- Singh, A., Sindhav, B., Eesley, D., Bhowmick, B. (2018). Investigating the role of ICT intervention in grassroots innovation using structural equation modelling approach, (Springer) Sadhana (Accepted)
- Singh, A. and Bhowmick, B. (2017). An Exploratory Study on Technological Innovation for Entrepreneurship Development in Rural-Non- Farm Sector in India. (Emerald), Journal of Enterprising Communities: People and Places in the Global Economy 12 (3).
- Singh, S. and Bhowmick, B. (2016). Innovation Network for Entrepreneurship Development in Rural Indian Context: Exploratory Factor Analysis. International Journal of Innovation and Technology Management, 13(4).
- Singh, S. and Bhowmick, B. (2017) Research on Rural Innovation in India: Evaluating Factors of Micro-finance Innovation, Innovative Management Solutions for Competitive Advantages, Excel India Publishers, 74-87.
- Singh, S. and Bhowmick, B. (2015). A study on Evaluating Factors of Community Innovation in Rural Indian Context. Proceeding of Eleventh Biennial Conference on Entrepreneurship, Bookwell, I, 401-409.
- Singh, S. and Bhowmick, B. (2015). An Exploratory Study for Conceptualization of Rural Innovation in Indian Context. Procedia- Social and Behavioral Sciences, 207, 807-815.





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Profile

Zuhair has completed M.Tech and B.Tech in Computer Science and Engineering. He has worked for WIPRO Technologies in SAP CRM module. He joined the department in December, 2012.

Research

Framework for Designing Health Insurance in Rural India

Out-of-pocket payments are the major source of healthcare finance in India as well as in most of the Asian countries. India comes third in the list of countries-with the highest out of pocket expenditure (OPE) on health – in south – east Asia. OPE can be prevented by applying prepayment. Prepayment and pooling of funds to replace or minimize the direct out – of pocket payments. Push health insurance lower and middle income countries have to make key decision about how to pool risk, generate resources and provide services. The health insurance plan ensures that people must avail health services without facing financial hardship while paying for that. Access to health services enables people to be more productive and active contributors to their families and communities. Health coverage is thus a critical component of sustainable development.





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Profile

I have done M.Tech in Power System and B.Tech in Electrical Engineering (EE) from West Bengal University of Technology. I have worked as an Assistant Professor for 2 years. I have worked as a Project Engineer for 3 years in First Esco India Pvt. Ltd. I joined IIT Kharagpur in the PhD programme in the year 2013. Presently working in the area of Renewable Energy in the context of Indian Entrepreneur

Research

Renewable Energy

Low grade waste heat can be well-defined as heat contained in a substance rejected from a process at a temperature higher than the ambient levels of the plant. The latest technologies pertaining to different types of low grade waste heat recovery are being researched. With the increase in price of fossil fuels in the global scenario, many of the manufacturing companies have started looking for alternate power source for their low grade heat source. The research aims to develop a practical model for low grade waste heat recovery, which can be used as an alternative source of energy. Developing Entrepreneurial Aspects of “Parametric Study of organic Rankine Cycle based Power Generation Technology to Exploit Low Grade Waste Heat Recovery in Indian Industry”.

Publications

- Utilization of low-grade waste heat-to-energy technologies and policy in Indian industrial sector: a review. Clean Technol. Environ. Policy. 2017 19: 327.
- Performance Analysis of Organic Rankine Cycle Technology to Exploit Low-Grade Waste Heat to Power Generation in Indian Industry. (CEESD 2017 19th International Conference on Energy, Environment and Sustainable Development, London)





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Profile

Priyanka is a Ph.D. Research Scholar in Rajendra Mishra School of Engineering Entrepreneurship at IIT Kharagpur. She received B.Tech. in Electronics and Communication Engineering from West Bengal University of Technology and M.Tech in Signal Processing from Indian Institute of Technology, Roorkee.

Research

Energy Modelling

The energy system is undergoing a key transition, and in energy planning and policymaking across academia, industry and governments, energy model plays a crucial role. Energy model is useful for multi-criteria assessments of the impact of energy policies on the economy and environment. India's energy production has been greatly relying on coal, but recently there has been a major shift and is now emerging as a major market for renewable energy, laying out aggressive plans for investments in wind and solar power. This research focuses to develop an energy model for India which could be employed in planning the development of the energy sector at national as well as regional levels in a sustainable way. It would be capable of taking into consideration the geographical and climatic characteristics of the varied states in India and cost-effectively integrate high percentage of renewable resources useful for decarbonisation.

Publications

Priyanka Laha, Basab Chakraborty. Energy model – A tool for preventing energy dysfunction. Renewable and Sustainable Energy Reviews 2017; 73:95–114.





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Profile

I am currently pursuing Ph.D. in the Department of Rajendra Mishra School of Engineering Entrepreneurship, Indian Institute of Technology Kharagpur, India, since December 2013. My Ph.D. is jointly advised by Prof. Partha Pratim Das and Prof. Titas Bhattacharjee (Rudra). My research interests are Software Engineering, Computer Vision and my current work is related to Eye Gaze Tracking and Program Comprehension.

Research

Tracking and Comprehension of Reading Behaviour of C/C++ programs using Eye Gaze Tracker

Improving productivity is a continual need in Software Industry. A major part of the effort in the industry goes into the maintenance of software characterized by the absence of design documents, the inconsistency of documentation, and non-availability of proper knowledge transfer. Developers, therefore, needs to discover design and other details by reading the code. Hence, we identify Code Reading as a critical skill. Our main objective is to build a tool to capture and visualize the code reading pattern.

In our work, we attempt to offer a solution to estimate productivity from the code reading patterns of developers using Tobii X2-30 eye-gaze tracker (EGT). As the developer reads a C/C++ program in an IDE, her eye gazes are captured by X2-30 at 30 samples / sec. The X2-30 data stream with the timestamp is then analysed offline along with the program text to generate the reading sequence of the tokens as read by the developer with which we can track the reading pattern. Based on the reading sequence and the hierarchical structure of the program, we propose to build Program Models for Comprehension.

Publications

Sayani Mondal and Partha Pratim Das,” An Ide-agnostic system to capture reading behaviour of c++ programs using eye-gaze tracker.” In Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), 2015 Fifth National Conference on, pages 1-4.





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Profile

Jignesh completed his masters in Industrial Process Equipment Design and graduation with majors in Mechanical Engineering. He has worked as Assistant Professor at Charotar University of Science and Technology, Gujarat. He joined the department in July, 2014 and is also involved in Autonomous Ground Vehicle research group of IIT Kharagpur.

Research

Development of active tilt control system for narrow track high speed electric three wheelers

The research addresses the issues associated with the Active Tilt Control (ATC) system implementation of the electric three wheelers (3Ws). With the implementation of ATC system on the top of 3Ws, it would be possible to reduce the rollover propensity of 3Ws to acceptable levels. In addition, the ATC 3Ws will face lower perceived acceleration which adds to comfortable ride for the passengers. With reduced roll over propensity and enhanced lateral acceleration, it is expected that the 3Ws would be extremely suitable for personal mobility. Also, similar vehicles would result in reduced vehicular emission and more suitable personal transport for the congested cities.

Publications

- Jignesh Sindha, Basab Chakraborty, and Debashish Chakravarty." Rigid body modeling of three wheel vehicle to determine the dynamic stability -A practical approach", Transportation Electrification Conference (ITEC), 2015 IEEE International.IEEE, 2015.
- Jignesh Sindha, Basab Chakraborty, and Debashish Chakravarty." Automatic stability control of three wheeler vehicles- Recent Developments and Concerns towards a sustainable technology" Proc. IMechE, Part D: Journal of Automobile Engineering. (Accepted)





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Profile

Piyush Dongre has completed his B.E in 2011 in Electronics & Telecommunication Engineering from Bhilai Institute of Technology (Durg) and M.Tech in 2014 in Visual Information Processing & Embedded Systems from dept. of ECE, I.I.T Kharagpur. He is pursuing PhD and has joined the dept. in 2015.

Research

Application of Visual-Inertial Fusion for Large Scale Scene Reconstruction

Good quality scene reconstruction is one of the prime area of research in computer vision. It has application in numerous areas such as Virtual Reality, Augmented Reality and in-general creating 3D models of the object. With the evolution of technology, several approaches had been tried to accomplish this task, under various scenarios. My research deals with the problem of creating a high quality 3D model of the scene, of a large scale object in an outdoor setting. The novelty of this research is the use of multi-modal sensors for better scene observation and pose estimation, in multiple session operation. For pose estimation of the camera, corresponding to each visual observation of the scene, we are using fusion of information captured from camera and inertial sensors mounted on the platform. By using this precise localization, we build 2D and 3D model of the scene, and do its quality assessment. The value creation from this research will be a technological solution which can be used to create digital representation of archaeological sites and be useful in preserving the architectural heritage.





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Profile

Bishnu completed his Master of Technology in Geotechnical Engineering from National Institute of Technology (NIT), Rourkela. He has experience from varied industries like Larsen & Toubro Limited as a Project Engineer for 10 years and ITC Limited as an Assistant Project Manager for 5 years. He joined the department in December 2014.

Research

Recycling Selected Solid Wastes for Civil Engineering Application

The research aims to develop value-added construction materials such as bricks and concrete out of coal mine spoil and iron ore tailings. Mine spoils and iron ore tailings are of limited economic value, whereas they cause serious environmental pollution threatening the entire ecology of the area. The study covers waste materials such as mine spoil, iron ore tailing, rice husk, fly ash, and waste plastic. The mine spoils causes enormous pollution to air, water, and soil thereby rendering the area unfit for habitation. Several authors suggested that the best way to get rid of such pollutants is to find ways to use them in construction work. Researches have put forth process technologies for converting these wastes into commercially relevant products. However, no technology has yet been adapted for large scale commercial use of waste. On the flip side, there is growing scarcity of construction materials such as topsoil used for manufacturing bricks and limestone query for aggregate. Topsoil that is used for making brick is the most precious for healthy botanical growth. Increasing use of top soil for making clay bricks is dangerous for food security of the world population. The natural sources of aggregates are fast depleting. Finding an alternative to soil and natural stones for making brick and concrete respectively is highly imperative and timely. The present research work is directed to evolve process for using waste materials, particularly mine spoils and iron ore tailings, to replace soil to make bricks and other construction materials. Another focus of the research is to reduce the weight of construction materials using organic matters such as rice husk and natural fiber.

Publications

- Bose B. P., K. Behera and M. K. Mondal (2016) Use of Minestone from Coal Mine Overburden as Aggregate in Concrete, 6th International Conference on Solid Waste Management (Jointly organized by JU, IISc. Bangalore and IIT Kharagpur) Vol. 6, Pp. 1101–1109.
- K. Behera K., B. P. Bose, M. K. Mondal (2016) Production of Construction Bricks Using Iron Ore Tailings and Clay, 6th International Conference on Solid Waste Management (Jointly organized by JU, IISc. Bangalore and IIT Kharagpur) Vol. 6, Pp. 825–835.
- Mondal M. K., B. P. Bose & P. Bansal (2017), Recycling Waste Thermoplastic for Making Lightweight Bricks, In 5th International Conference on Sustainable Solid Waste Management, Athens, 21–24 June.
- Mondal M. K., B. P. Bose & P. Raj (2017), Recycling Coalmine Wastes in Construction Materials to Advance End-of-Life, 16th International waste management and landfill symposium Italy, 2-6 October 2017
- K. Behera., B. P. Bose, M. K. Mondal (2016) Production of Construction Bricks Using Iron Ore Tailings and Clay, 6th International Conference on Solid Waste Management 2016 has been accepted finally to publish in the Springer Book Chapter. The publication process is going on. The book "Waste Management and Resource Circulation" is expected to be released by February 2018.





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Profile

Sireesha Tamada completed her Masters in Power Electronics from Department of Electrical & Electronics Engineering, Birla Institute of Technology (BIT), Mesra in 2014. She pursued her Bachelors in Electrical Engineering from Biju Patnaik University of Technology, Orissa. She joined Rajendra Mishra School of Engineering Entrepreneurship at Indian Institute of Technology Kharagpur in December, 2014 as a Research Scholar.

Research

Product modelling and development of control strategies in Automotive

The advent of new automobiles being introduced in the market with developing technologies aims at improving fuel efficiency and reducing emissions. Automotive market has witnessed the rising demand of Automatic Transmission for better efficiency and shift quality which are determined by shift strategy and shift control. The impact of the evolving control designs on the safety and reliability of the system are being investigated greatly by implementing automotive electronics. The gear shifting automation makes use of Transmission Electronic Control units (ECU) to deal with the increasing complexities of automobile systems. The research is focussed on improving shift quality by applying various non-linear control techniques on an automatic transmission system. This ensures smoother gear shifting process and thereby enhances the drivability of the vehicle.





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Profile

Manali completed her post-graduation and graduation in Computer Science and Engineering from West Bengal University of Technology, Kolkata. Before joining this department in December 2014, she was working as assistant professor in engineering college affiliated under WBUT.

Research

Business Analytics and organizational performance

Evidence of the competitive value of business intelligence (BI) and analytics solutions is growing. Fact-based decision making is spreading throughout commercial, non-profit, and public sector organizations. An increasing number of organizations are making BI and analytics functionality more broadly available to all decision makers inside and outside the organization. So, over the long term, BI solutions will continue to be applied to optimize a wide array of processes in an effort to improve performance management and organizational competitiveness. Broadly to speak of about my research, it will mainly revolve around corporate governance practices in technological start-ups, whether its effect is good or bad in organizational performance

Publications

- Human capital in inculcation of good governance at Indian IPO firms: Future research agenda”, Manali Chatterjee, Titas Bhattacharjee, INDAM 2017, held at IIM Indore.
- “The influence of ownership and innovation on firm performance - a study in Indian context”, Manali Chatterjee, Titas Bhattacharjee, India Finance Conference 2016, held at IIM Ahmadabad
- “How CSR influences brand performance –a study on Indian B2B context”, Manali Chatterjee, Titas Bhattacharjee, Soumya Sarkar, India CSR conference, held at IIM Calcutta





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Profile

Manish Chandra has completed B.Tech in 2011 in Mechanical Engineering from Cochin University of Science and Technology (Cochin, Kerala) and M.Tech in 2014 in Industrial and Management Engineering from Manufacturing Engineering Department NIT Jamshedpur. He also worked as Assistant Professor, Mechanical Engineering Department, at MVN University, Palwal Haryana. He is pursuing PhD and joined the school in Dec 2014.

Research

Product modelling and development of automotive gearbox

The developing transmission technology in automobile industry aims at improving fuel efficiency. IC engine driven cars require transmission system to ensure the availability of required torque at wheels to ensure smooth functioning of vehicle in different driving conditions. Better driveability, more fuel efficiency and smoothness in gear shifting are some the critical factors that dictate the design and architecture of transmission system. The research deals with state of the art of automotive transmission technologies and effect of several parameters on gearbox transmission efficiency and also it focusses on the development of new architecture of gearbox.





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Profile

Aashish is a post graduate in Power Electronics from Birla Institute of Technology (BIT), Mesra, Ranchi. He has worked for 6 months in Cognizant Technology Solutions as a Programmer Analyst (Trainee). He also has a professional experience as an Assistant Professor in the Department of Electrical and Electronics Engineering at Uttarakhand Technical University, Dehradun from July 2010 to June 2012. He joined Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur in December 2014 as an Institute Research Scholar. school in Dec 2014.

Research

Development of Thermoelectric Portable Air Cooling System using Hybrid Heat Sinks

Recent trends in air conditioning traverses from the conventional methodology to the newer one that delivers optimum human comfort and enhances sustainability. With the rapid development of new and improved thermoelectric materials with high figure of merit (zT), thermoelectric coolers (TEC) have emerged as one such technology that offers effective solution and a promising future replacement of vapor compression (VC) air conditioning systems. The present research aims at exploring the improvement of Coefficient of Performance (COP) through efficient heat transfer, accomplished by leveraging on combined radiative and conductive heat transfer for fabricating heat sinks. This research aims to design a low-cost portable thermoelectric module based air-conditioning system and optimize its performance. The study also focus on how a potential solution can be developed in context of current market replacing the contemporary air cooling technologies. An improvement in the heat sink material of the thermoelectric coolers will promise energy efficient and cost effective solution to suit the current market demand. The research promises a practicable product development and present a market-ready product for a domestic audience.

Publications

- Kumar, A. & M. K. Mondal, "Performance improvement of Solar-powered Thermoelectric Refrigerator using Phase Change Material and Air-water coolant for Thermal management" in The First Symposium Sustainable technologies for food processing and preservation, Goa, 2018.
- Kumar, A., N. Neogi & M. K. Mondal, "Experimental Evaluation of Thermal Rating of Thyristors at Different Motor Duty Cycles," in International Conference on Electrical, Electronics and Optimization Techniques (ICEEOT), Chennai, 2016.
- Mondal, M. K., Kumar, A., & Bose, B. P., "Entrepreneurship education through MOOCs for accelerated economic growth in MOOCs", in Innovation and Technology in Education (MITE), IEEE 3rd International Conference on (pp. 407-411), IEEE, 2015.





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Profile

She has completed her M. Tech. in Industrial Engineering and Management from Maulana Abul Kalam Azad University of Technology (Formerly known as WBUT), West Bengal. She completed her Bachelor of Engineering in Aeronautical Engineering from St. Peters' College of Engineering and Technology, Chennai. She joined the Department in 2015.

Research

Product Design and Optimization

It is defined as reducing variation in a product without eliminating the causes of the variation. In other words, making the product or process insensitive to variation. This variation (sometimes called noise) can come from a variety of factors and can be classified into three main types: internal variation, external variation, and unit to unit variation. She intends to focus on the robust design of a product and optimizing the functionality of the product by using Computed Aided Design (CAD) and Computer Aided Engineering (CAE), modelling and simulations. After going through the state of the art of gear shifting mechanism, she is enthusiastic in conducting the research on the area of optimizing the shifting mechanism of AMT by means of design optimization. Currently she is trying to optimize the synchronizer system through simulations and DOE analysis. Her area of interest for future research lies in optimizing and remodelling the gear synchronizer with reduced pain points in the process and more economical and fuel efficient design that will ensure improved control and passenger comfort.





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Profile

I did my B-tech in CSE from CUTM, Orissa. Completed my M-tech in Information and Communication Technology from IIT, Kharagpur. Now I am pursuing my PhD under the guidance of Prof. Partha Pratim Das in Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur, Since July 2015. My broad area of research is Human Computer Interaction for Digital Heritage.

Research

Automatic Analysis and Interpretation of Indian Classical Dance using Kinect.

Indian Classical Dance (ICD), an ancient heritage of India, consists of visual (posture, movements, and expressions), auditory (music, tempo, rhythm, and intonation) and textual (lyric of the song) information that tell a story through body movements, hand gestures, vocal and instrumental music, facial expression (emotion), costume, and make-up. With time, these dance forms have been interpreted and performed by different artists in different ways and various sets of complex rules have emerged for body postures and gestures.

In this work we intend to automate the analysis and interpretation of different forms of ICD and extensively use Bharatanatyam for our explorations. As such little work has been done in computer analysis of dance as the capture of multimedia aspect of dance has been a challenging task. And whatever little research exists, they deal primarily with Western dance forms like Ballet, Samba, and Salsa. There is hardly any work on ICD.

Recent advances in short-range depth imaging technology have led to the development of affordable multimedia cameras like Microsoft Kinect that can detect and track various human movements in real-time. We use Kinects here to analyse and interpret the multimedia aspects of ICD.

Publications

- Achhyuta Aich, Tanwi Mallick, Himadri B.G.S. Bhuyan, Partha Pratim Das, and Arun K. Majumdar. "Nritya Guru : A Dance Tutoring System for Bharatanatyam using Kinect." ,Proceeding NCVPRIPG 2017, to appear, Springer CCIS proceedings 2018.
- Anindhya Sankhla, Vinanti Kalangutkar , Himadri B.G.S. Bhuyan, Tanwi Mallick , Vivek Nautiyal, Partha Pratim Das, and Arun K. Majumdar. "Automated Translation of Human Postures from Kinect Data to Labanotation." , Proceeding NCVPRIPG 2017, to appear, Springer CCIS proceedings 2018.
- Tanwi Mallick, Himadri B.G.S. Bhuyan, Partha Pratim Das and Arun K. Majumdar. "Research Data Set for Indian Classical Dance." , Accepted for publication as an e-Book, Springer, 2018.





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Profile

Saurabh Singh Thakur is a Ph.D. Research Scholar in Rajendra Mishra School of Engineering Entrepreneurship at IIT Kharagpur. He received B.E. in Computer Science and Engineering from Rajiv Gandhi Technical University, Bhopal and M.Tech in Information and Communication Technology from IIT Kharagpur.

Research

IoT in Healthcare

The burden of chronic diseases is rising and it is increasing mortality rate, morbidity rate, and healthcare cost. To shift from sick care to preventive care is inevitable. The concept of eHealth is buzzing around for a considerable time but it is not utilized in preventive care. I am working to develop a framework which monitors activities of daily living ubiquitously and unobtrusively. Monitoring is carried out with the help of ICT and IoT based technologies like smartphones, mobile apps, and wearable health devices. The data sensed through this monitoring will further be used to recognize activities of daily-living, mining behavioral patterns, profiling of the behaviors and designing personalized intervention depending upon the behavior profile. A detailed literature survey is carried out to explore the state-of-the-art in this field of research. Various research gaps are identified from the literature. Based upon the research gap analysis, research objectives are decided and a detailed plan of study is finalized. The preliminary results are quite encouraging towards our aim of building technological solutions for behavior recognition, modeling and profiling.

Publications

- Saurabh Singh Thakur, Ram Babu Roy. Smartphone based Ubiquitous Data Sensing and Analysis for Personalized Preventive Care: A Conceptual Framework. In International Conference on Computational Intelligence: Theories, Applications and Future Directions, December 6th - 8th, 2017, Indian Institute of Technology Kanpur, India.
- Saurabh Singh Thakur, Ram Babu Roy. A Mobile App based Smoking Cessation Assistance using Automated detection of Smoking Activity. In the ACM India Joint International Conference on Data Science & Management of Data CODS-COMAD 2018 | 5th ACM IKDD CoDS and 23rd COMAD, 11th -13th, January, 2018, Goa University, Goa, India.
- Jasabanta Patro, Bidisha Samanta, Saurabh Singh Thakur, Abhipsa Basu, Prithwish Mukherjee, Monojit Choudhury, Animesh Mukherjee. All that is English may be Hindi: Enhancing language identification through automatic ranking of the likeliness of word borrowing in social media. In proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing (EMNLP), September 7-11, 2017 | Copenhagen, Denmark





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Research

Product Analytics and Modelling

Product design and development elicit the process of creating new product or develop an existing product attributes with high accuracy and precision. Application of Computer Aided Design (CAD) and Computer Aided Engineering (CAE) methodologies, when combined, can lead to new concepts for deducing desired product specification. This virtual simulation based approach of design and development for a desired product provide a thorough and in-depth analysis of product behavior, which facilitates improvement of features with superior attributes and improved performance during operation.

Publications

- Sourabh Mandol, Debraj Bhattacharjee, and Pranab K. Dan. “Structural Optimization of Wind Turbine Gearbox Deployed in Non-conventional Energy Generation.” International Conference on Research into Design (2017) Pages 835-848. Springer, Singapore.
- Sourabh Mandol, Debraj Bhattacharjee, and Pranab K. Dan. “Robust Optimization in Determining Failure Criteria of a Planetary Gear Assembly Considering Fatigue Condition.” Structural and Multidisciplinary Optimization, Vol. 53, Issue 2 (2016), Pages 291-302.
- Pranab K. Dan and Sourabh Mandol. “An Optimization Approach to Product Design in Modeling Gearbox Set.” Proceedings of the World Congress on Engineering and Computer Science 2, 2015.





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Research

Product Analytics and Modelling

Product analytics is a specialized application of business intelligence (BI) and analytical software that consumes service reports, product returns, warranties, customer feedback and data from embedded sensors to help manufacturers evaluate product defects, identify opportunities for product improvements, detect patterns in usage or capacity of products, and link all these factors to customers. Product analytics can also incorporate feeds from social platforms to track complaints about products. By analysing product data feeds in real time, this software can proactively alert manufacturers to service and replacement needs in reactive as well as preventive maintenance scenarios, and help route service requests to the proper individuals or, with the help of machine-to-machine (M2M) technologies, perform service remotely.

Publications

- Debraj Bhattacharjee, Prabha Bhola, and Pranab K. Dan. "A heuristic synthesis of multistage planetary gearbox layout for automotive transmission." Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics (2018) in Press.
- Debraj Bhattacharjee, Prabha Bhola, and Pranab K. Dan. "Modelling of Safe Driving Assistance System for Automotive and Prediction of Accident Rates." International Journal of Ambient Computing and Intelligence 10.1(2018) in Press.
- Debraj Bhattacharjee, Prabha Bhola, and Pranab K. Dan. "Conceptual Modelling of Assistance System Based on Analytical Determination of Factors Related to Safety in Automotive Driving in Indian Context." International Conference on Computational Intelligence, Communications, and Business Analytics. Springer, Singapore, 2017.
- Sourabh Mandol, Debraj Bhattacharjee, and Pranab K. Dan. "Robust optimization in determining failure criteria of a planetary gear assembly considering fatigue condition." Structural and Multidisciplinary Optimization 53.2 (2016): 291-302.





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Profile

Jayshree joined the department in July 2015. She completed B. Tech. in Mechanical Engineering from Siksha 'O' University name in 2013 and M. Tech in Manufacturing Process and Systems from Kalinga Institute of Industrial Technology in 2015.

Research

Role of Appropriate Technology in Sustainable Development

Technology is intrinsically associated with technical and social structure. In some parts of the world technology has enhanced the quality of life, but some communities are yet to reap the benefits of technological innovation. Therefore innovative solutions are much sought after by many communities. Appropriate Technology is a different kind of technology which is prevalent in rural third world. Appropriate Technology helps to develop technology which can lead to building up of a sustainable society. The question lies in exploring its appropriateness and how it can be appropriated with latest technological breakthrough to attain Sustainability.

Publications

- Patnaik, J., Bhowmick, B. (2018). Revisiting Sustainability Issues at the Local Level: Implementation Challenges. International Conference on Sustainability and Business (SUSBUE 2018), Indian Institute of Management Calcutta, January 13-14, 2018.
- Patnaik, J., Bhowmick, B. "Appropriate Technology: Revisiting the Movement in Developing Countries for Sustainability". World Academy of Science, Engineering and Technology, International Science Index 135, International Journal of Civil, Environmental, Structural, Construction and Architectural Engineering (2018), 12(3), 246 – 250.





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Profile

Shibabroto is currently serving as Principal Project Officer-Systems in the project National Digital Library of India sponsored by MHRD. Before that was working as a Senior Technician (permanent position) in the Department of Computer Science and Engineering IIT Kharagpur. He has done his Master's in Information Technology from Sikkim Manipal University. He is an MS student from Rajendra Mishra School of Engineering Entrepreneurship.

Research

Analysis of Plethysmographic Signals

Shibabroto's research area is Digital Signal Analysis. His topic of research is Analysis of Photoplethysmographic (PPG) Signals. These signals or waveforms are generated from Pulse Oximeter when attached to the ring finger of a human body. The analysis of these waveforms could predict the condition of the human heart, lungs and other important internal organs. This research could develop a software and predict the condition of important organs of the human body specially heart in a non-invasive manner. As the Pulse Oximeter is easily available, hence, early detection of heart disease may also be possible





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Profile

Manojit completed his B.Tech from IIT Kharagpur and MBA from IIM Calcutta. He brings in a decade long leadership experience in energy industry, serving federal & constituent governments of nation states, Fortune 500 multinationals, statutory regulatory authorities and international multilateral financial institutions. He has served in India, the United States and Hong Kong in diverse capacities including Member of the Board of Directors. His interests include innovative business solutions, creative application of technology and steering enabling framework for the progression of mankind.

Research

Energy

Embracing demand response advances in renewable generation supported micro-grid in a sustainable way would drive proliferation of the enabling framework, potentially benefitting billions across the globe. Assessment of prevailing standards, development of new ones and applicability of fuzzy embedded system design practices in designing secure IoTs forms the core area.





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Profile

Ragavi received her Master of Technology in Biomedical Engineering from Vellore Institute of Technology (VIT), Vellore. Currently pursuing her doctoral program in Rajendra Mishra School of Engineering Entrepreneurship (RMSoEE), IIT Kharagpur in the year 2016. She enjoys learning new things, a good team player and adaptive in nature.

Research

Designing a 3D micro scale devices for Mesenchymal stem cells (MSCs) culture and differentiation towards the development of organ-on-a-chip

Electrospinning, a popular nanotechnology for fiber formation based on electrohydrodynamic theory, is widely used for many applications due to its simplicity, efficacy and environmentally friendliness. Nano fiber mimics the natural extracellular matrix, providing a physical support and interaction with neighbouring cells; adding growth factors and nutrients that helps in cell proliferation. Mesenchymal stem cell (MSCs) innate nature and potential to differentiate into different cell types are widely used in therapeutic applications; treatment of chronic and neurodegenerative diseases, tissue engineering for various human organ lesion and also for transplantation in many cellular therapy. MSCs showed promising results in regenerative medicine due to their intrinsic multi-lineage capacity, immune suppressivity, and ability to multiply with cytokines secretion for tissue healing. Conducting or electroactive polymer are getting widely held for its enormous properties and advantage for using in regeneration engineering. Where the charged particles help for the study of cell behaviour and even to fate or differentiate to the desired cell without growth factor. Such external stimulus alone showed to motivate the differentiation and combining with particular medium enhanced to particular differentiation. The goal is to design Micro-scale electro-bioreactor and study with MSCs. Further with Electrical and Electromagnetic stimulus using conducting polymer and super paramagnet of *in vitro* effects and comparative analysis on differentiation of MSCs into Fibroblast is studied.





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Abhijit is a PhD research scholar at Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur since December 2015. He completed his M.Tech with specialization in Information and Communication Technology from IIT Kharagpur and B.E in Information Technology from IEST, Shibpur (erstwhile BESU, Shibpur). He has five years and nine months of work experience in National Institute of Electronics And Information Technology (NIELIT), under Ministry Of Electronics and Information Technology (MeitY), Govt. of India, posted at Agartala. He joined NIELIT as Scientist 'B' and later on promoted to Scientist 'C'.

Research

Multimedia Data Analytics

With the advent of internet technologies, large numbers of multimedia resources are being created across domains, spanning from entertainment to educational. These resources are aimed to have larger consumer base and are typically accessible across the globe through video sharing web portals. A Massive Open Online Course (MOOC) is an online course platform aimed at unlimited participation and open access via the web. A user can also access the video lectures of certain MOOC courses without enrolling for it, if it is available at some video sharing sites like, YouTube. But a problem with the video sharing website is that retrieval of a specific video is done based on textual meta-data. The textual meta-data is limited and are typically entered manually by the user. The manual entry is error-prone, laborious and expensive. It is therefore difficult to find specific point of interest within a video lecture. To achieve these, appropriate techniques needs to be explored for identifying features from video and audio contents of the lecture. Our research goal is to generate automatic meta-data from lecture videos for its efficient indexing and retrieval.





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Profile

Harshit is a PhD research scholar at Rajendra Mishra School of Engineering Entrepreneurship, IIT Kharagpur since July 2016. He completed his M. Tech with specialization in Power Electronics and Drives from NIT Kurukshetra and B. Tech in Electrical Engineering from Dayalbagh Educational Institute, Agra. He has one year of work experience in IT Infrastructure Management Services at HCL Infosystems Ltd., Noida.

Research

Energy Planning and Policy

In order to provide energy access solutions to energy deprived population over the globe, several technological advancements and innovations are getting evolved, but due to improper energy planning and inappropriate policies these technologies and innovations are not effectively diffused resulting large population in the world living with zero electricity access. This research aims to propose optimal energy planning and policy implications to energy service providers in order to ensure energy security especially in context of India.





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Profile

I have completed B-TECH in Information Technology in 2010. After that I worked 7 years in IT infrastructure domain in different project. Currently I am working in IIT Kharagpur National Digital Library project as Senior Project Officer (Systems) and responsible for manage IT infrastructure domain of NDL project.

Information Retrieval

Research

Currently I am doing MS in IIT Kharagpur. My research interest domain is Information retrieval. My work related to information retrieval Approach to Short Text. My work propose is formalizing short text conversation as a search problem at the first step and using information retrieval (IR) techniques to carry out the task





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Profile

Bijitaswa completed his post-graduation (M. Tech) in Computer Science & Engineering from KIIT University, Bhubaneswar, Odisha and graduation (B. Tech) in Information Technology from Govt. College of Engineering and Ceramic Technology, Kolkata under West Bengal University of Technology. He has work experience of 5 months as assistant professor in engineering college affiliated under WBUT. He joined this department in December 2016.

Research

Application of Machine Learning in Finance

Today stock market prediction in the field of engineering, mathematics and finance is an important issue. The stock market is now seen gradually as an optimum investment outlet because a huge amount of capital is flown through stock market. Researchers are continuously trying to prove the predictability of the financial market. Though different scientific methods have been made, no method is efficient to predict accurately stock price movement. There are some methods which give the mild successes to solve it. So, Stock market prediction is an emerging topic to researchers





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Research

Large Scale Melody Extraction from Classical and Modern Music Signals

Melody extraction is the task of automatically extracting the fundamental frequency of the dominant instrument in the polyphonic music signal". The dominant instrument can be either the human singing voice or any lead instrument in the polyphonic music signal. Since the most of the available popular polyphonic music signals contain vocals as dominant source, vocal melody extraction is the goal of my thesis.





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Profile

Akanksha is pursuing her PhD program at Rajendra Mishra School of Engineering Entrepreneurship (RMSoEE), IIT Kharagpur. She completed her M.Phil in Development Studies from Allahabad University. Prior to this, she has done MBA in Operations Management & Information Technology from IIIT-Allahabad and B.Tech in Electronics & Communication Engineering from SIET Allahabad.

Research

Strengthening Supply Chain for efficient Product Development

Today, strategic relationships between customers and suppliers play a very crucial role in value creation of a developing product which ultimately decides the fate of any business. The attributes of today's fast developing market are: designing products in accordance with the processes and supply chains, processes following the supply chains and product designs, and supply chains coordinating with the product designs and processes. These will not only reduce the cost of the product but also the response time to market if the co-designs of the above attributes are done properly. Nevertheless, the collaboration between supplier and product development process is very hard to find than between the customer and product development process. So, to determine the managing method or approach for the inclusion of suppliers in product development process is an emerging topic to researchers.

Publications

Akanksha Jaiswal, Abhinav, Anurika Vaish "Study of Variables influencing Bullwhip Effect in Supply Chain", OORJA Journal of Management and IT, ISSN: 0974-7869, January-April 2014.





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Research

Construction of a reduced order observer for linear time invariant system with unknown inputs

Logic Synthesis optimization using Memristor. Memristors add new capabilities to CMOS technology and are projected to be commercially available in the near future. This is the fourth basic two-terminal circuit element which is called memristor or 'memory resistor'. The property of memristor that relates charge and flux leading to a device behaviour where the resistance changes with an applied electric field. Memristors are nanoscale devices which have the potential to replace CMOS technology. Using memristors as inverse to CMOS circuits is largely instigated by area and power constraints. Memristor-based logic as well as memory designs are expected to take up less physical area and use fewer transistors than their CMOS technology counterparts. Some of the characterization of memristors that are compatible for PUFs (Physical Unclonable functions) such as it possesses controllable non-linearity in its electrical behaviour and the ability to generate a more unique and randomness in the process variations compared to the CMOS processes. Memristor will requirement less area and power consumption in logic and memory circuit construction. It is very viable to have small silicon utilization and less power usage.





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Profile

Richa Malviya is a Research Scholar in Rajendra Mishra School of Engineering Entrepreneurship of IIT Kharagpur. She received B. E. in Biomedical Engineering from Shri G S Institute of Technology and Science, Indore, Madhya Pradesh and M.S in Medical Technology from School of Medical Science and Technology, IIT Kharagpur. She has research experience of more than three years at Ngee Ann Poly, Singapore, IIT Bombay and IIT Kharagpur and has served as Assistant Professor at SSN College of Engineering, Chennai for a year.

Research

Product Design and Development

Richa has worked on Medical Imaging and Image Processing, while developing Computer Assisted Cervical Cancer Detection System at IIT Kharagpur. She has also worked on Retinal Fundus Images at Ngee Ann Polytechnic, Singapore. Currently she is working on developing a product to assist researchers and pathologists in medical domain with viewing a sample under microscope.

Publications

Malviya, R, 'Retinal Fundus Image Enhancement and Segmentation' J. Med. Imaging Health Inf. 3, 568-574 2013. American Scientific Publishers.

Malviya, R.; Karri, S.P.K.; Chatterjee, J.; Manjunatha, M.; Ray, A.K., "Computer assisted cervical cytological nucleus localization," TENCON 2012 - 2012 IEEE Region 10 Conference , vol., no., pp.1,5, 19-22 Nov. 2012.

Das, L.; Malviya, R.; Manjunatha, M.; Ray, A.K.; Chatterjee, J.; Dutta, P.K., "Efficacy of low cost Liquid Based Cytology for cervical smears in automated segmentation of cells and nuclei, "Systems in Medicine and Biology (ICSMB), 2010 International Conference on , vol., no., pp.414,418, 16-18 Dec. 2010.





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Research

Product Design and Development

Development of rapid prototyping machine for electronics packaging with the help of additive manufacturing.





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Research

Technology Value-Chain & Sustainability in Health Care Sectors

The prime focus is on strategies involved in technology-driven Value Chain and Sustainability in terms of business perspective gaining competitive advantage focusing on creating or adding value to a product or service. Value chains is an integral part of strategic planning which places more focus on innovation, R&D, marketing and economic conditions. Enterprise value chains should develop and support towards a broader Sustainability perspective to ensure that its suppliers, consumers, business partners, community relationships and interactions remain viable, socially oriented, and environment friendly. Appropriate deployment of technological innovation contributes to improvement in the quality of healthcare delivered, the containment of cost, and access to the healthcare system. Medical technology is used specifically for diagnostic and/or therapeutic purposes and covers an extensive range of healthcare products such as equipment, devices and consumable products.





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Research

Developing new framework for harvesting wind energy

The research aims is to design and build a new framework for harvesting wind energy that is to be more efficient compared to the conventional wind turbine. The major challenge of wind energy converter is the efficiency of the wind turbine to translate the available kinetic energy into electricity. Though the theoretically 59% percent efficiency is achievable, the actual values are between 30 – to 45%. The objective of the project is to innovate new design framework to improve the conversion efficiency.





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Profile

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Research

Energy Storage

The present research work is directed to develop an advanced lead-acid battery for renewable storage applications. The bibliography for lead-acid batteries is quite broad, due to its long history and wide ranging applications in telecommunications, backup power and portable devices as well as in the automobile industry. Although its cycle life and reliability have been consistently improved, the recent focus is on increasing its specific energy and power. Thus the research goal is to achieve greater specific energy by both lighter components using novel designs and/or materials and improving active material utilization.





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Research

Product Design and Development

The broad field of product design and development inculcates the process of creating a new product or developing an existing product to satisfy the need of the end user. With the use of Computer Aided Design (CAD) and Computer Aided Engineering (CAE) methodologies, emphasis of a new realm of concept generation can be achieved to obtaining desired product specification which satisfies customer's need. The goal is to design and develop a product which will provide all the desired characteristics, involving a thorough and in-depth study of the product behaviour under various known condition, to lay the foundation of a new concept generation.





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