

Bablu Lal Rajak

Assistant Professor, System Administrator

Department of Computer Science

St. Anthony's College, Shillong

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QUALIFICATIONS

Academic

- PhD (pursuing), North-Eastern Hill University (NEHU), Shillong
- Master of Technology, NEHU, Shillong
- Master of Science, Punjab Technical University, Jalandhar
- Bachelor of Science, NEHU, Shillong

Non-Academic

- Green Belt Course on Six Sigma Methodology
- Certified Ethical Hacking Expert (Level I)
- Redhat Certified Engineer

EXPERIENCE

- 2011 – till date Assistant Professor, System Administrator, St. Anthony's College
- 2014 – 2017 Research Associate, Department of Science & Technology sponsored Research Project, Department of Biomedical Engineering, NEHU
- 2009 – 2011 Lecturer (Part-Time), St. Anthony's College, Shillong
- 2006 – 2011 Assistant Lecturer, St. Anthony's Higher Secondary School, Shillong
- 2002 – 2006 Assistant Teacher, Eriben Presbyterian Sec. School, Shillong

ACADEMIC RESPONSIBILITIES

- Project Coordinator, Unnat Bharat Abhiyan – St. Anthony's College
- Coordinator, AICTE - MCA programme
- Coordinator, AISHE
- Coordinator, Online Examinations
- Member, Editorial Board, Spectrum-College Journal
- Member, NAAC Core Committee
- Member, Research Cell
- Member, Equal Opportunity Cell
- Member, Library Committee
- Member, Entrance Examination Committee
- Member, Admission Committee

PUBLICATIONS

International Journals

- **B. L. Rajak**, R. Kumar, L. R. Singh, M. Gogoi and T. Challam. "Template free sonochemical synthesis of mesoporous zinc oxide nanosheets for nanomedicine", *Materials Today: Proceedings, Elsevier (Accepted)*.
- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee. "Increasing number of therapy sessions of repetitive Transcranial magnetic stimulation improves motor development by reducing muscle spasticity in cerebral palsy children", *Annals of Indian Academy of Neurology. (Accepted)*.
- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee. "Effect of repetitive Transcranial Magnetic Stimulation on motor function and spasticity in spastic cerebral palsy", *International Journal of Biomedical Engineering and Technology (Accepted)*.

- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee. “Neuromodulatory effect of repetitive Transcranial magnetic stimulation pulses on functional motor performances of spastic cerebral palsy children”, *Journal of Medical Engineering and Technology* 2018, Vol. 42, No. 5, pp. 352-358. DOI: 10.1080/03091902.2018.1510555
- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee. “Effect of repetitive Transcranial magnetic stimulation pulses on muscle spasticity of cerebral palsy patients”, *International Journal of Physical Medicine and Rehabilitation* 2018, vol. 6, no. 2, 1000465. DOI: 10.4172/2329-9096.1000465
- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee. “Transcranial Magnetic Stimulation in spastic Cerebral Palsy helps achieve developmental milestone: A case report”, *Clinical Psychiatry* 2017, Vol. 3, No. 2, pp. 13-16. DOI: 10.21767/2471-9854.100044
- M. Gupta, D. Bhatia, **B. L. Rajak**. “Study of Available Intervention Techniques to Improve Cognitive Function in Cerebral Palsy Patients”, *Current Neurobiology* 2017, vol. 8, No. 2, pp. 51-59. ISSN 0975-9042
- D. Bhatia, **B. L. Rajak**, M. Gupta, “Computational Approaches in Neuroprotection and Neurorehabilitation”, *Journal of Biological Engineering Research and Review* 2017; Vol. 4 (Suppl. 1) pp.23. E-ISSN: 2349-3232
- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee. “Effect of repetitive Transcranial Magnetic Stimulation on hand function of spastic cerebral palsy children”, *Journal of Neurological Disorders*. 2017, Vol 5, No 1, 1000329. DOI: 10.4172/2329-6895.1000329, ISSN: 2329-6895
- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee. “Effect of different rTMS pulses in functional performance of upper extremities in children with spastic cerebral palsy”. *International Journal of Biotechnology and Biomedical Sciences (IJBBS)*. 2016, Vol. 2, No. 3, 216-219. P-ISSN: 2454-4582; E-ISSN: 2454-7808.
- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee, S. Paul, T. K. Sinha. “Power Spectrum Density analysis of EEG signals in spastic cerebral palsy patients by inducing r-TMS therapy”. *Journal of Biomedical Engineering and Technology*. 2016, Vol. 4, No. 1, 7-11. ISSN (Online): 2373-1303
- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee. “Transcranial magnetic stimulation therapy in spastic cerebral palsy children improves motor activity”, *Journal of Neuroinfectious Diseases*. 2016, vol. 7, No. 4 DOI: 10.4172/2314-7326.1000231. E-ISSN: 2314-7326, P-ISSN: 2314-7334
- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee, S. Paul, T. K. Sinha. “Power spectral analysis of EEG as a potential marker in the diagnosis of spastic cerebral palsy cases”. *International Journal of Biomedical Engineering and Sciences*. July 2016, Vol. 3, No. 3, pp. 23-29. DOI: 10.5121/ijbes.2016.3303. ISSN: 2394-0832
- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee. “Effect of r-TMS over standard therapy in decreasing muscle tone of spastic cerebral palsy patients”. *Journal of Medical Engineering and Technology*, 2016, Vol. 40, No. 4, pp. 210-216. ISSN: 0309-1902 (Print) 1464-522X (Online). PMID: 27010377. DOI:10.3109/03091902.2016.1161854
- **B. L. Rajak**, M. Gupta, D. Bhatia. “Growth and Advancements in Neural Control of Limb”. *Biomedical Science and Engineering*, 2015, Vol. 3, No. 3, pp. 46-64. ISSN (Print): 2373-1257; ISSN (Online): 2373-1265. DOI: 10.12691/bse-3-3-1.
- D. Bhatia, **B. L. Rajak**, M. Gupta, A. Mukherjee. “Application of Micro-Electro-Mechanical Systems as Neural Interface”. *Journal of Advances in Biomedical Engineering and Technology*, 2015, Vol. 2, pp. 1-10. ISSN: 2409-3394.

Book Chapters

- S. Ahmed, **B. L. Rajak**, M. Gogoi, D. Pyngrupe, “Magnetic nanoparticles mediated cancer hyperthermia” in *Smart healthcare for disease diagnosis and prevention* (Eds. S. Paul, P. Bhattacharyya) Elsevier, 2019 (Submitted)
- **B. L. Rajak**, R. Kumar, M. Gogoi, S. Patra, “Antimicrobial activity of nanomaterials” in *Nanoscience in Medicine* (Eds. H. K. Daima, P. N. Navya, S. Ranjan, N. Dasgupta, E. Lichtfouse) Springer Nature, 2019 (Accepted)

- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee, S. Paul, T. K. Sinha, “Power spectral study of EEG signal from frontal brain area of autism spectrum disorder cases”, *Proceedings of the International Conference on Computing and Communication Systems, Lecture Notes in Networks and Systems* 2018, 24, pp. 523-529, Springer Nature. DOI: 10.1007/978-981-10-6890-4_51

International Conferences

- D. Bhatia, **B. L. Rajak**, A. Mukherjee. “Improved motor performance in spastic cerebral palsy children after repetitive transcranial magnetic stimulation”. *World Stroke Congress 2018*, October 17 – 20, 2018. Montreal, Canada.
- **B. L. Rajak**, R. Kumar, L. R. Singh, M. Gogoi and T. Challam. “Template free sonochemical synthesis of mesoporous zinc oxide nanosheets for nanomedicine”, *International Conference on Nanotechnology: Ideas, Innovations and Initiatives (ICN3i-2017)*, December 6-8, 2017, IIT Roorkee
- R. Kumar, **B. L. Rajak**, L. R. Singh, M. Gogoi and T. Challam. “Synthesis and evaluation of small Mesoporous Silica Nanoparticles for antimicrobial activity”, *International Conference on Nanotechnology: Ideas, Innovations and Initiatives (ICN3i-2017)*, December 6-8, 2017, IIT Roorkee
- **B. L. Rajak**, M. Gupta, D. Bhatia and A. Mukherjee. “Effect of varying pulses on efficacy of repetitive Transcranial magnetic stimulation therapy in spastic cerebral palsy children”, *XXVI Congress of the International Society of Biomechanics (ISB-2017)*, July 23-17, 2017, Brisbane, Australia.
- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee. “Effect of different rTMS pulses in functional performance of upper extremities in children with spastic cerebral palsy”. *International Conference on Recent Research in Biomedical Engineering, Cancer Biology, Stem Cells, Bioinformatics and Applied Biotechnology (BECBAB-2017)*, Feb 25, 2017, Jawaharlal Nehru University, New Delhi.
- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee, S. Paul, T. K. Sinha, “Power spectral study of EEG signal from frontal brain area of autism spectrum disorder cases”, *Second International Conference on Computing and Communication Systems, I3CS-2016*, Nov. 11 -13, 2016, Dept. of IT, NEHU, Shillong.
- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee. “Transcranial Magnetic Stimulation as assistive technology to enhance motor performance in spastic cerebral palsy children”, *International Conference on Biomedical Engineering & Supportive Technologies - BEST 2016*, Sept 2-3, 2016, BIET, Jhansi, UP. *Proceedings*: ISBN 987-93-85777-90-5
- A. Mukherjee, M. Gupta, **B. L. Rajak**, D. Bhatia. “Case study in Cerebral Palsy and its Management using repetitive Transcranial Magnetic Stimulation (rTMS)”, *MAPS Fall 2016 Functional Translational Medicine Conference*, Medical Academy of Paediatric Special Needs (MAPS), Sept 8-10, 2016. Atlanta, GA, USA.
- D. Bhatia, **B. L. Rajak**, M. Gupta, A. Mukherjee, S. Paul, T. K. Sinha. “Improved motor performance in spastic cerebral palsy children after repetitive transcranial magnetic stimulation”. *Neuroscience 2016*, Nov 12 – 16, 2016. San Diego, USA.
- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee. “Effect of r-TMS on motor cortex in spastic Cerebral Palsy”. *IVth International conference and workshop of Physical Therapy*, Nov 28-29, 2015. AIIMS, New Delhi.
- D. Bhatia, **B. L. Rajak**, P. Nomo Sudro. “Efficacy of pharmacological and non-pharmacological strategies towards cerebral palsy induced spasticity”. *XXV Congress of the International Society of Biomechanics (ISB-2015)*, Jul 12 – 16, 2015. Glasgow, Scotland, UK..

National Conferences

- M. Gupta, **B. L. Rajak**, D. Bhatia, A. Mukherjee, “Recovery in motor disability and spasticity by employing repetitive Transcranial magnetic stimulation in spastic cerebral palsy”, 3rd

National Conference on Disability, Nov 17, 2016, New Delhi. **Award: Best Innovative Research**

- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee, S. Paul, T. K. Sinha, “FFT based analysis provide a new dimension for spastic Cerebral Palsy children - Post rTMS therapy”. *29th Annual Meeting of Society for Neurochemistry, India & National Workshop and Conference on “Advances in Computational Neurochemistry and Neurobiology” (SNCI-ACNN)*, Dec 16 - 21, 2015. NEHU, Shillong. **Award: Best Oral Presenter**
- **B. L. Rajak**, M. Gupta, D. Bhatia, A. Mukherjee. “Comparative study between r-TMS and standard therapy in spastic CP kids”. *National Conference on Recent Trends in Biomedical Engineering*, Aug 2015. NEHU, Shillong.

ACADEMIC FELLOWSHIPS/GRANTS RECEIVED

- *DBT International Travel Award* to attend the XXVI Congress of the International Society Of Biomechanics (ISB 2017), July 23 – 27, 2017, Brisbane, Australia
- *Best Oral Presenter Award* in the 29th Annual Meeting of Society of Neurochemistry (SNCI), India: National Workshop and Conference on Advances in Computational Neurochemistry and Neurobiology, Dec 16 – 21, 2015, Dept. of Biomedical Engineering, NEHU, Shillong.
- *UGC Post-Graduate Scholarship* for Professional Courses, 2015-2017.
- *Teachers Achievement Award*, International Informatics Olympiad, 2009-2010
- *Teachers Award* by Help Age India, 2004 & 2005
- *Studentship Award*, North Eastern Council, Govt. of India, 1998 – 2000.

ORIENTATION & SHORT-TERM COURSES

- Short Term Course on “*Computational Fluid Dynamics for Engineering Applications using OpenFOAM and FLUENT*” (CFDEA-2018), August 6-10, 2018, Dept. of Biomedical Engineering, NEHU, Shillong.
- *Faculty Orientation Programme*, April 20, 2018, St. Anthony’s College, Shillong.

CONFERENCES / SEMINARS / WORKSHOPS

Conferences – Organizing Member

- *US Higher Education Informational Conference*, Aug 31, 2019, Indo-American Center, Washington DC, USA in collaboration with St. Anthony’s College, Shillong
- *4th National Conference on Emerging Trends and Applications in Computer Science (NCETACS-2018)*, Sept 14 – 15, 2018, Dept. of Computer Science, St. Anthony’s College, Shillong.
- *IBRO/APRC Associate School 2017*, June 5 – 10, 2017, Dept. of Biomedical Engineering, NEHU, Shillong.
- *National Conference on Biomechanics and Rehabilitation Engineering*, Sept. 15 – 16, 2016, Dept. of Biomedical Engineering, NEHU, Shillong.
- *National Conference on Recent Advances in Nanoscience and Nanotechnology (NCRANNT-2016)*, Sept 8-9, 2016, Dept. of Nanotechnology, NEHU, Shillong.

- *29th Annual Meeting of Society of Neurochemistry (SNCI), India: National Workshop and Conference on Advances in Computational Neurochemistry and Neurobiology*, Dec 16 – 21, 2015, Dept. of Biomedical Engineering, NEHU, Shillong.
- *1st IEEE International Conference on Emerging Trends and Applications in Computer Science (ICETACS-2013)*, Sept 13 – 14, 2013, Dept. of Computer Science, St. Anthony's College, Shillong.
- *Facilitator in the Summer Academic Program of College of Wooster – Wooster in North East India 2013*, May 15 – June 13, 2013, Wooster, Ohio, USA and St. Anthony's College, Shillong.
- *MEGHABYTES-2011, Meghalaya IT Summit on "Community Empowerment in North-East India through ICT"* held from Sept 8 – 10, 2011, St. Anthony's College, Shillong

Conferences - Participated / Paper presented**

- *XXVI Congress of the International Society Of Biomechanics (ISB 2017)***, July 23 – 27, 2017, Brisbane, Australia.
- *International Conference on Computing and Communication Systems (I3CS'16)***, Nov 11 – 13, 2017, Dept. of Information Technology, NEHU, Shillong.
- *International Conference on Biomedical Engineering and Support Technologies (BEST-2016)***, Sept. 2 – 3, 2016, Bundelkhand Institute of Engineering and Technology (BIET), Jhansi, UP.
- *29th Annual Meeting of Society of Neurochemistry (SNCI), India: National Workshop and Conference on Advances in Computational Neurochemistry and Neurobiology***, Dec 16 – 21, 2015, Dept. of Biomedical Engineering, NEHU, Shillong.
- *International Conference & Workshop of Physical Therapy***, Nov 28 -29, 2017, All India Institute of Medical Sciences (AIIMS), New Delhi.
- *National Conference on Recent Advances in Biomedical Engineering***, Aug 28 – 29, 2015, Dept. of Biomedical Engineering, NEHU, Shillong.
- *Advances in Computational NeuroScience (ACNE-2014)*, March 24 – 29, 2014, Dept. of Biomedical Engineering, NEHU, Shillong and National Brain Research Centre, Manesar, Haryana.
- *National Education Summit 2014*, January 10 – 11, 2014, Knowledge Consortium of Gujarat, Govt. of Gujarat.
- *1st IEEE International Conference on Emerging Trends and Applications in Computer Science*, Sept 13 – 14, 2013, Dept. of Computer Science, St. Anthony's College, Shillong.
- *XXI Triennial Convention of the Xavier Board of Higher Education in India*, April 27 – 30, 2013, St. Philomena's College, Mysore.
- *3rd National Conference on Emerging Trends and Applications in Computer Science*, March 30 – 31, 2012, Dept. of Computer Science, St. Anthony's College, Shillong.
- *1st National Conference on Emerging Trends and Application in Computer Science"* at St. Anthony's College, Shillong, 2010.

Workshops – Organizing Member

- Awareness programme on *Environmental Hazards of Electronic Waste*, Mar 14, 2019, Ministry of Electronics & Information Technology (MEITY), Govt of India in

partnership with MAIT, Rekart Innovations Pvt. Ltd under the aegis of "DIGITAL INDIA INITIATIVE"

- Workshop on *Census info Software and Data Dissemination of Census 2011*, July 30, 2014, Directorate of Census Operation, Meghalaya and Dept. of Statistics, St. Anthony's College, Shillong.
- *Industry Oriented Training Programme and Certification Workshop on Enterprise Data Analytics & Business Modelling*, September 23 – 28, 2013, Dept. of Commerce, Business Administration and Economics, St. Anthony's College, Shillong.
- National Workshop on *Social Science Research Methodology*, March 4 – 13, 2013, Dept. of Economics, St. Anthony's College, Shillong.
- National Workshop on *the Use of SPSS in Social Science Research*, Nov 30 – Dec 6, 2012, Dept. of Economics, St. Anthony's College, Shillong.
- National Workshop on *the Use of Statistical Tools with SPSS: Theoretical and Practical Orientations*, Nov 14 – 19, 2011, Dept. of Economics, St. Anthony's College, Shillong.

Workshops – Participation

- *Next Gen ICT Skill Conclave*, Feb 13, 2019, Trident ICT Academy, White Field, Bengaluru.
- Workshop on *"The use of Foldscope: Towards democratising science by providing microscope for all"* July 12, 2018, Dept. of Biomedical Engineering, NEHU, Shillong.
- Workshop on *"Cancer Genomics"*, March 12-16, 2018, DBT-NER Biotechnology and Bioinformatics Training Centre, Advanced Centre of Training, Research and Education in Cancer, Navi Mumbai
- Workshop on *"Advanced Tools in MATLAB"*, Sept. 27, Dept. of Biomedical Engineering, NEHU, Shillong.
- Workshop on *"MIMICS"*, Sept. 19 – 20, 2016, Dept. of Biomedical Engineering, NEHU, Shillong.
- National Workshop on *Advances in Computational Neurosciences (ACNE 2014)*, March 24 – 29, 2014, Dept. of biomedical Engineering, NEHU, Shillong.
- National Workshop on *Creation and Management of Digital Collection*, May 19 – 23, 2014, Information and Library Network (INFLIBNET) Centre, Gandhinagar, Gujarat.
- 15th Workshop on *Computational Information Processing*, December 3 – 6, 2013, ECSU, ISI, Kolkata and Dept. of IT, NEHU, Shillong.
- *IEEE MATLAB Workshop 2013*, June 22 – 23, 2013, IIT, Guwahati.
- Workshop on *Training in Research Techniques and Applications*, March 20 – 21, 2013, Research Cell, IQAC, St. Anthony's College, Shillong.
- National Workshop on *the Use of SPSS in Social Science Research*, Nov 30 – Dec 6, 2012, Dept. of Economics, St. Anthony's College, Shillong.
- National Workshop on *Research Methodology and Biostatistics*, October 4 – 6, 2012, Dept. of Biological Sciences, Gauhati University, Guwahati.
- Tutorial session on *Bio-Inspired Artificial Intelligence*, March 29, 2012, National Conference on Emerging Trends and Application in Computer Science" at St. Anthony's College, Shillong.

- National Workshop *on the Use of Statistical Tools with SPSS: Theoretical and Practical Orientations*, Nov 14 – 19, 2011, Dept. of Economics, St. Anthony's College, Shillong.

Seminar – Organizing Member

- National Seminar - *Towards Standardizing Khasi for Computational Purposes*, October 28 – 29, 2014, Dept. of Computer Science, St. Anthony's College, Shillong.

Seminar – Participation / Paper presented**

- International Symposium *on Plants to Medicine: Advances in Gnome Biology*, April 30, 2012, Dept. of biological Sciences, IST, Gauhati University, Guwahati.
- National Seminar *on Strategies for Agricultural Research in the North East***, ICAR, Umiam, 1999.