

## **RESUME**

### **Dr. Angana Saikia**

Assistant Professor

Department of Biomedical Engineering

School of Engineering and Technology

Mody University of Science and Technology

Lakshmangarh, Distt. Sikar (Rajasthan) - 332311

**Email:** lovelyangana.03@gmail.com/anganasaikia.set@modyuniversity.ac.in

**Phone:** +91-9435700171

### **Area of Area of Interest:**

Biomedical Signal Processing, Instrumentation, Electrophysiology, Neurophysiology, Prosthetics, Machine Learning , Neurodegenerative Disorder, Cognitive sciences.

### **Software Knowledge:**

Matlab, Origin, P-Spice, AD instruments, Arduino UNO programming

### **Academic Qualifications:**

DEGREE	UNIVERSITY/ BOARD	SUBJECT/ SPECIALIZATION	GRADE/CLASS	YEAR
PhD	North-Eastern Hill University (NEHU), Shillong, India	Biomedical Engineering Title: " <i>Study of functional and neuronal changes in early stages of Parkinson's disease using EEG in correlation with EMG</i> "	(O) /1 <sup>st</sup> Grade in Course work Exam	2020
M-Tech	Tezpur Central University, India	Electronics and Communication (Bioelectronics)	1 <sup>st</sup>	2014
BE	Guwahati University, India	Applied Electronics and Instrumentation	1 <sup>st</sup>	2011
12th	KVK, India (CBSE)	Science	1 <sup>st</sup>	2006
10th	VKV, India (CBSE)		1 <sup>st</sup>	2004

**Professional Experience:**

Sl.no	Designation	Institute	Department	Period
1	Research Associate- I ( DST sponsored IMPRINT-2 project entitled, “Development of cost effective web and mobile application for detection of Parkinson’s disease”, IMP/2018/000034)	North-Eastern Hill University, Shillong, India.	Biomedical Engineering	May 2019-March 2021 (1.10 Years)
2	Teaching Assistant	North-Eastern Hill University, Shillong, India.	Biomedical Engineering	August 2017- April 2019 (1.9 Years)
3	Senior Research Fellow (DBT Sponsored Project entitled, “ Design of Artificial Hand with Artificial Finger” , (BT/532/NE/TBP/2013)	North -Eastern Hill University, Shillong, India.	Biomedical Engineering	August 2016 to July 2017 ( 1 Year)
4	Junior Research Fellow (DBT Sponsored Project entitled, “ Design of Artificial Hand with Artificial Finger” , (BT/532/NE/TBP/2013)	North- Eastern Hill University, Shillong, India.	Biomedical Engineering	November 2014 to July 2016 (1.7 Years)
5	Lecturer	Institute of Electronics and Telecommunication Engineers, Guwahati, India	Electronics and Telecommunication Engineering	August 2011 to July 2012 ( 1 Year)

**Achievements:**

1) **Young Scientist Travel Grant** award by Department of Science and Technology (DST), GOI to attend International Conference (Society for Neuroscience, 2017) in Washington DC, USA, November 11-15, 2017.

- 2) **IBRO Travel Grant** to attend IBRO-APRC Associate School on Electrophysiological Enlightenment of System Neuroscience, Nepalese Army Institute of Health Sciences, Kathmandu, Nepal, May 8-12, 2018.
- 3) **Young Scientist Travel Grant** award by Council for Scientific and Industrial Research, Human Resource Development Group (CSIR), GOI to attend International Conference (Society for Neuroscience, 2018) in San Diego, USA, November 3-7, 2018
- 4) Council for Scientific and Industrial Research, Human Resource Development Group (CSIR), GOI, **Direct Research Associate for 2019-2020.**

### **Professional Membership:**

- 1) Student member for Society for Neuroscience. (ID No. 210947047)
- 2) Student member of International Society for Neurochemistry, India (ID No. 23793)
- 3) Student member of Asia Pacific Society for Neurochemistry. (ID No. 17-3-IND-S20).

**Orchid Id:** <https://orcid.org/0000-0001-7916-9148>

**Scopus Author ID:** 57188986664

**Google Scholar:** <https://scholar.google.com/citations?hl=en&user=zFNA73YAAAAJ>

### **Publications:**

### **Patent:**

- Title of the Invention: Tremor identification Device for Parkinson's Disease  
Ref no: 201931035443  
App. Number: TEMP/E-1/37534/2019-KOL  
Date: 3/9/2019
- Title of the Invention: Interactive Gaming device for cerebral palsy intervention, treatment and management and its method thereof.  
Patent no: 2020102546/ Australian Government /IP Australia.  
Date: 1/10/2019

## **Copyright:**

- Title of the Invention: Algorithm for Early Detection of Parkinson's Disease  
Registration no: L-100032/2021  
Dairy no: 20740/2020-CO/L  
Date: 03/03/2021

## **BOOK:**

- 1) **Angana Saikia**, Sudip Paul, M. Hussain. Overview of Parkinson's disease and its Relevance. Lambert Academic Publishing, Germany. Year: 2018. (ISBN 978-613-3-99599- 4)
- 2) Sudip Paul, **Angana Saikia**, Vinayak Majhi, Vinay Kumar Pandey. Introduction to Biomedical Instrumentation and Its Applications. Elsevier Science .Year: 2021 [ISBN-9780128216743] (Production)

## **BOOK CHAPTER:**

1. **Angana Saikia**, M. Hussain, Sudip Paul, (2018). Effect of Dopamine in Parkinson`s disease. "Trends in Experimental Biology", Vol: 3, Excel Publication, New Delhi, India. [ISBN: 9789388237079]
2. **Angana Saikia**, Vinayak Majhi, M. Hussain, Sudip Paul, (2019). Tremor identification using machine learning in Parkinson's disease.Early Detection of Neurological Disorders Using Machine Learning systems.IGI Global, Pennsylvania, USA. PP: 128-151. [ISBN: 978-1-5225-8567-1].
3. **Angana Saikia**, Masaraf Hussain, Amit R Barua, Sudip Paul.An insight into Parkinson's disease: Researches and its complexities. InSmart Healthcare for Disease Diagnosis and Prevention 2020 Jan 1 (pp. 59-80). Academic Press. [ISBN: 9780128179130]
4. **Angana Saikia**, Sudip Paul. Application of Deep Learning for EEG. In Handbook of Research on Advancements of Artificial Intelligence in Healthcare Engineering 2020 (pp. 106-123). IGI Global.
5. **Angana Saikia**, Masaraf Hussain, Amit R Barua, Sudip Paul (2019). Rehabilitation device control using electroencephalography: a review. Application of Biomedical Engineering in Neuroscience, Springer Nature, Singapore. [ISBN: 978-981-13-7141-7].
6. Sanjay Saxena, Sudip Paul, Adhesh Garg, **Angana Saikia**, Amitava Datta. Deep Learning in Computational Neuroscience. In Challenges and Applications for Implementing Machine Learning in Computer Vision 2020 (pp. 43-63). IGI Global. [ISBN: 9781799801825].

## **JOURNAL PAPERS:**

### **SCI/Scopus**

1. **Angana Saikia**, Sushmi Mazumdar, Nitin Sahai, Dinesh Bhatia, Sudip Paul, Punit Kumar Rohilla, Suresh Verma. Recent advancements in prosthetic hand technology. Journal of medical engineering & technology, Taylor & Francis Group, 2016;40(5);255-64
2. **Angana Saikia**, Sushmi Mazumdar, Nitin Sahai, Sudip Paul, Dinesh Bhatia. Performance Analysis of Artificial Neural Network for Hand Movement Detection from EMG Signals. IETE Journal of Research. 2019 Jul 17:1-10.
3. **Angana Saikia**, Nayan M. Kakoty, Nabasmita Phukan, Malarvili Balakrishnan, Nitin Sahai, Sudip Paul, and Dinesh Bhatia. Combination of EMG Features and Stability Index for Finger Movements Recognition. Procedia Computer Science. Elsevier.133 (2018): 92-98.
4. **Angana Saikia** , Masaraf Hussain, Amit Ranjan Barua, Sudip Paul. EEG-EMG Correlation for Parkinson's disease. International Journal of Engineering and Advanced Technology. 8(6):1179-1185(2019). DOI: 10.35940/ijeat.F8360.088619.
5. **Angana Saikia**, Vinayak Majhi, Masaraf Hussain, Sudip Paul. A Systematic review on Application based Parkinson's disease Detection Systems. International Journal on Emerging Technologies 10(3): 166-173(2019).
6. **Angana Saikia** , Masaraf Hussain, Amit Ranjan Barua, Sudip Paul. Performance Analysis of various Neural Network functions for Parkinson's disease Classification using EEG and EMG. International Journal of Innovative Technology and Exploring Engineering 9(1): 2019.

### **Other Journals**

1. **Angana Saikia**, Pallab Bhattacharya, Sudip Paul. Importance of Dopamine in Parkinson's disease. Advances in Tissue Engineering and Regenerative Medicine.MedCrave.2018; 4(3):454 455. doi:10.15406/atroa.2018.04.00077.
2. **Angana Saikia**, Masaraf Hussain, Amrit Ranjan Barua, Sudip Paul, (2018) Detection of Parkinson's Disease Using Clinical Diagnostic Tools. J Neurol Disord Stroke 6(2): 1143.
3. **Angana Saikia**, Sudip Paul, Vinay Kumar Pandey. Prevalence of Parkinson's disease in India: A Review. Journal of Biomedical Engineering Research and Review. 2017. (E-ISSN: 2349-3232)
4. Punit Kumar Rohilla, Suresh Verma, Dinesh Bhatia, Nitin Sahai, Sudip Paul, **Angana Saikia**, Sushmi Mazumdar. Material Selection for the Prosthetic Hand. International Journal of Biomedical Engineering.2017; 3(1).

5. Sushmi Mazumdar, **Angana Saikia**, Nitin Sahai and Sudip Paul. Below Elbow Prosthetic: A Path to Independent Era. International Journal of Advanced Information Science and Technology (IJAIST), 2015; 34(34).

### **CONFERENCE PAPER:**

1. **Angana Saikia**, Vinayak Majhi, Masaraf Hussain, Amit Ranjan Barua, Sudip Paul, J.K. Verma (2020). Machine learning based diagnostic system for early detection of Parkinson's disease. IEEE International Conference on Computational Performance Evaluation(ComPE),North Eastern Hill University, India .

2. **Angana Saikia**, Masaraf Hussain, Amit Ranjan Barua, SudipPaul. Significance of Lyapunov Exponent in Parkinson`s disease using Electroencephalography. Spin 2019, Amity University, New Delhi. March 7-8, 2019. IEEE.

3. **Angana Saikia**, Sudip Paul. Early detection of Parkinson`s disease using bio signals. Science Communicator's Meet during 105th Indian Science Congress at Manipur University, Imphal, Manipur. March 16-20, 2018.

4. **Angana Saikia**, Sudip Paul. Detection of Dementia and Cognitive Impairment in elderly people with Parkinson's disease. Third Annual Meeting of Neuroscience Society of Nepal, Nepalese Army Institute of Health Sciences, Kathmandu, Nepal. May 12-13, 2018.

5. **Angana Saikia**, Vinay Kumar Pandey, Sudip Paul, Masaraf Hussain, Amrit Ranjan Barua. Assessment of Parkinson`s disease through Clinical and Demographic data. SfN 2018,San Diego, USA. November 3-7, 2018.

6. **Angana Saikia**, Sudip Paul, Vinay Kumar Pandey. Correlation between electroencephalogram and Electromyogram in Parkinson`s disease: A Review. SfN Neuroscience 2017, Washington DC, USA. November 11-15, 2017.

7. **Angana Saikia**, Sushmi Mazumdar, Nitin Sahai, Dinesh Bhatia, Sudip Paul. Comparative study and feature extraction of the muscle activity patterns in healthy subjects. In Signal Processing and Integrated Networks (SPIN), 2016 3rd International Conference, Amity University, Delhi, on 2016 Feb 11 (pp. 147-151). IEEE.

8. **Angana Saikia**, Sushmi Mazumdar, Nitin Sahai, Dinesh Bhatia, Sudip Paul. Biomaterials in Prosthetic-A Review. International Conference on Biomaterials, Bio diagonistics, Tissue Engineering, drug delivery, And Regenerative Medicine (BITERM-2016),IIT Delhi, April 15-17, 2016.

9. **Angana Saikia**, Nitin Sahai, Finger movement recognition using neural network, 2nd International Conference on Bio Signals, Images and Instrumentation(ICBSII-2015),SSN College, Chennai, March 19-21,2015.
10. **Angana Saikia**, Sushmi Mazumdar, Nitin Sahai, Dinesh Bhatia, Sudip Paul. Brain computer interfaced controlled prosthetic hand using EMG signal. National Workshop and Conference on Advances in Computational Neurochemistry and Neurobiology (ACNN),NEHU, Shillong, December 16-21, 2015.
11. Nitin Sahai, Dinesh Bhatia, Sudip Paul, **Angana Saikia**. Muscle mechanics of upper limb involved in the designing of prosthetic hand with moving fingers. XXV Congress of the International Society of Biomechanics in Glasgow, July 12– 16, 2015.
12. Sushmi Mazumdar, **Angana Saikia**, Nitin Sahai, Sudip Paul, Dinesh Bhatia. Microcontrollers in Prosthetics: An Overview. National Conference on Recent Advances in Biomedical Engineering (NCRABME – 2015), NEHU, Shillong, August 28- 29, 2015.
13. Sudip Paul, Pallav Bhattacharya, **Angana Saikia**. Early Detection of Cerebral Stroke using Biosignal. 11<sup>th</sup> World Stroke Congress. Montreal, Canada, October 17-20, 2018.
14. Sushmi Mazumdar, **Angana Saikia**, Nitin Sahai, Dinesh Bhatia, Sudip Paul. Comparative study and feature extraction of the muscle activity patterns in healthy subjects. InSignal Processing and Integrated Networks (SPIN), 2017 4th International Conference, Amity University, Delhi on 2017 Feb 2 (pp. 96-99). IEEE.
15. Vinay Kumar Pandey, **Angana Saikia**, Sudip Paul. Unique approach to control speech sensory and motor neuronal disorder through natural language processing and cognitive development: A Review. REGICON 2017, IIT Manipur.
16. Sudip Paul, **Angana Saikia**, Ranjana Patnaik. Neural modelling based classification of rat brain EEG signal during ischemic stroke condition. VII Congress of Federation of Indian Physiological Societies (FIPS) & XXIX Annual Conference of Physiological Society of India (PSI) Organized by Defence Institute of Physiology & Allied Sciences, DRDO, Delhi. November 5-7, 2017.

#### **CONFERENCE/ WORKSHOP/TRAINING ORGANIZED AND ATTENDED:**

1. UGC-HRDC Short-term Course in Bio-medical Technology with a focus on Stress and its Remedies, , North Eastern Hill University, Shillong, December 14-21, 2020.(Attended)
2. AICTE Training And Learning (ATAL)Workshop On 3D Printing & Design, Department of Biomedical Engineering, North Eastern Hill University, Shillong, March 2-6,2020. (Attended)

- 3.** AICTE Training And Learning (ATAL)Workshop On Artificial Intelligence, Department of Electronics and communication Engineering, North Eastern Hill University, Shillong, October 21-25, 2019. (Attended)
- 4.** AICTE Training And Learning (ATAL)Workshop On Robotics in Healthcare, Department of Biomedical Engineering, North Eastern Hill University, Shillong, November 4-8, 2019. (Attended)
- 5.** IBRO-APRC Associate School on Electrophysiological Enlightenment of System Neuroscience, Nepalese Army Institute of Health Sciences, Kathmandu, Nepal, May 8- 12, 2018 . (Attended)
- 6.** Workshop on Brainwave Robotics, Electronics & ICT Academy, IIT Guwahati, Assam, March 26-28, 2018(Attended)
- 7.** IBRO-APRC Associate School on Computational approaches in Neuroprotection and Neurorehabilitation, North-Eastern Hill University, Shillong, India, June 5-10, 2017. (Attended)
- 8.** Short term course on Emerging Trends in Bio-Robotics for Development of Prosthetic and Orthotic Devices under GIAN Scheme of MHRD India, Department of Applied Mechanics, MNNIT Allahabad from December 19 -30, 2016. (Attended)
- 9.** National Conference on “Recent Advances in Biomedical Engineering” (NCRABME- 2015) at Department of Biomedical Engineering, North Eastern Hill University, Shillong from August 28-29, 2015 (Organized)
- 10.** 29th Annual Meeting of Society for Neurochemistry, India (SNCI) and National Workshop and Conference on “Advances in Computational Neurochemistry and Neurobiology” (SNCI-ACNN 2015) Organized by Department of Biomedical Engineering and Computer Centre North-Eastern Hill University from December16– 21, 2015(Attended)
- 11.** Workshop on “Virtual Laboratory” conducted by the Department of Biomedical Engineering, North Eastern Hill University, Shillong, Meghalaya, India in collaboration with Indian Institute of Technology (IIT), Roorkee from October 30-31, 2015(Attended)

(ANGANA SAIKIA)



