

ANANNA BISWAS

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EDUCATION	Ph.D. in Computer Engineering Michigan Technological University (MTU) CGPA: 3.5/4.00	Fall 2023 – Present Michigan, USA
	B.Sc. in Electronics and Communication Engineering Khulna University of Engineering and Technology (KUET) CGPA: 3.31/4.00	April 2015 – February 2019 Khulna, Bangladesh
RESEARCH EXPERIENCE	Visiting Ph.D. Researcher University of Southern California (USC) Working on the neuromorphic closed-loop neural prosthetic project: <ul style="list-style-type: none">○ Polymer microelectrode arrays (MEA) implantation in the rodent hippocampus.○ Neural Signal (Local Field Potential) Acquisition during behavior tests.○ Spike sorting by kilosort4○ Using DeepLabCut to assess rodents' behavioral matrices.	Fall 2024 California, USA
	Graduate Research Assistant Michigan Technological University (MTU) Working on the closed-loop DBS system: <ul style="list-style-type: none">○ Designing neuromorphic controller for closed-loop Deep Brain Stimulation (DBS) system for parkinson's diseases.○ Built computational dataset for parkinson's diseases	Fall 2023 – Present Michigan, USA
	Research Engineer Advanced Intelligent Multidisciplinary Systems (AIMS) Lab, UIU Dhaka Bangladesh Worked on a neuromarketing project: Designed experiments, collected and analyzed EEG signals and eye tracking data from human subjects watching marketing stimuli and predicted their responses (preference, purchase intention, and attention) through Support Vector Machine (SVM) classifier.	September 2021 – March 2022 Dhaka Bangladesh
	Research Assistant Brainekt-Computer Software Company <ul style="list-style-type: none">○ Worked on the following projects:<ul style="list-style-type: none">● Wheelchair patient monitoring system using EEG signals.● Anomaly detection of ECG signal by dot Residual LSTM Network.○ Working on the collaboration among independent researchers.	August 2019 – August 2021 Dhaka, Bangladesh
	Operator Fabrication (FAB) Lab, KUET <ul style="list-style-type: none">○ Organized workshop on "Laser Cutting & Engraving".○ Organized workshop on "Cutting Edge Fabrication Facilities".○ https://www2.kuet.ac.bd/fablab/operators-2018/	February 2018 – February 2019 Khulna, Bangladesh
GRANT & FELLOWSHIP	NSF AccelNet NeuroPAC Fellowship.	2024
	Institute of Computing and Cybersystems (ICC) Student Travel Grant.	2024
	Graduate Student Government (GSG) Student Travel	2024
	Shahjalal Islami Bank HSC Scholarship (Offered for poor & scholar Bangladeshi students)	2014
	Higher Secondary School Certification (HSC) Scholarship (Offered by the Government of Bangladesh)	2014
	Secondary School Certification (SSC) Scholarship (Offered by the Government of Bangladesh)	2012

PREPRINTS & PRESENTATIONS

Ananna Biswas, Hongyu An, "Preliminary Results of Neuromorphic Controller Design and a Parkinson's Disease Dataset Building for Closed-Loop Deep Brain Stimulation" arXiv, 2024.

Ananna Biswas and Hongyu An, **Designing LIF-based Controllers for Neuromorphic Closed-Loop Deep Brain Stimulation by Building a Parkinson's Disease Dataset**. International Conference on Neuromorphic Systems (ICONS), Arlington, Virginia. Poster: July 31, 2024.

Ananna Biswas, Abraham George, Asutosh Routa, Bhavika Gopalani, Cristian Lazo Quispe, Jongwon Yun, Joshua Philippe Olorocisimo, Manasa Boggarapu, Rouhong Wang, Tanushka Bhatia "Exploring the Mouse Visual Cortex", Neuromatch Conference. Flashtalk: August 2022.

PUBLICATIONS

Ananna Biswas, Fazla Rabbi Mashrur, Khandoker Mahmudur Rahman, Mohammad Tohidul Islam Miya, Farhana Sarker, Khondaker A. Mamun, **An Overview of Neuromarketing Research in Developing Countries: Prospects and Challenges**, 2nd International Conference on Computing Advancements (ICCA) (2022).

Ananna Biswas, Zabir Al Nazi, Tasnim Azad Abir, **Invasive Ductal Carcinoma Detection by A Gated Recurrent Unit Network with Self Attention**, International Conference on Electrical Information and Communication Technology (EICT) (2019).

Zabir Al Nazi, Ananna Biswas, Md. Abu Rayhan, Tasnim Azad Abir, **Classification of ECG Signals by dot Residual LSTM Network with data augmentation for anomaly detection**, International Conference on Computer and Information Technology (ICCIT) (2019).

TECHNICAL SKILLS

Languages: Python, MATLAB, HTML, CSS, C++, C
Framework/ Tools: Kilosort, DeepLabCut, EEGLAB, Keras, TensorFlow, scikit-learn, OpenCV, Pandas
Paper writing: LaTeX, Endnote
Data Analysis and Presentation: SQL, MS Excel, MS Word, MS Power Point
IDEs: Jupyter Notebook, Spyder, Code Blocks.
Operating Systems: Windows, Ubuntu, Linux

WET LAB EXPERIENCE

Behavioral tasks on rodents.
Electrophysiology neural recordings on rodents.
Chronic surgeries (microelectrode implantation) on rodents.

ONLINE COURSES AND TRAINING

- NMA Computational Neuroscience by Neuromatch academy.
 - Intro to Modeling
 - Machine Learning
 - Dynamic Systems
 - Stochastic Process
- The BCI & Neurotechnology Spring School 2022 by g.tec medical engineering GmbH.
- Ada Lovelace DATATHON 2021 by HERWILL and BdOSN:
 - Descriptive Analysis
 - Feature Engineering
 - Machine learning Models
 - Validation and Evaluation
- Introduction to Python (**datacamp**)
- Intermediate Python (**datacamp**)
- Neural Networks and Deep Learning by deeplearning.ai (**Coursera**).
- Improving Deep Neural Networks: Hyper parameter Tuning, Regularization and Optimization by deeplearning.ai (**Coursera**).
- Git for Developers Using GitHub by Coursera Project Network (**Coursera**).
- Speak English Professionally: In Person, online & On the Phone by Georgia Institute of Technology (**Coursera**).

**GRADUATE &
UNDERGRADUATE
COURSES**

Artificial Intelligence (AI), Probability & Stochastic Processes.
Machine Learning (ML), Intro to Big Data Analytics.
Data Structure & Algorithms, Database System, Internet Programming, C Programming,
Object Oriented Programming.
Digital Image Processing, Digital Signal Processing.
Numerical Analysis, Information Theory
Computer Networks.

**ACTIVITIES &
LEADERSHIP**

STEM Judge, Western U.P. STEM Fair & Festival	2024
Judge, Design Expo, MTU	2024
Publication Secretary, MEC, KUET	April 2018 – April 2019
Treasurer, KUET Career Club (KCC, KUET)	March 2018 – March 2019
IT executive, KUET Unit Face of ESAB (Engineering Students Association of Bangladesh)	July 2017 – July 2019
Organizing committee member of Technival'18, KUET	April 2018
Organizing committee member of Career Carnival, KUET	July 2017
Organizing committee member of Robi Career Carnival, KUET	August 2017