CURRICULUM VITAE

Tamal Chowdhury

Profile:

Deep Learning Researcher

An autodidactic and passionate Deep Learning practitioner and researcher. Proficient in using state of the art approaches for developing intelligent systems and with a dream to decipher the cornerstone of General Intelligence.

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EDUCATIONAL QUALIFICATIONS:

- B. Tech in Electronics and Communication Engineering — 2016-2020
  National Institute of Technology, Durgapur — GPA: 8.27
- Higher Secondary — 2015
  Board: West Bengal Board of Higher Secondary Education — Percentage: 90.2
- Secondary — 2013
  Board: West Bengal Board of Secondary Education — Percentage: 89.4

WORK EXPERIENCE:

- Data Science Analyst — June 2021 - Present
  Accenture AI
- Project Linked Person — September 2020 – June 2021
  Indian Statistical Institute, Kolkata

RESEARCH EXPERIENCE:

- **Project Linked Person at ISI Kolkata (2020-2021)**
  1. Developed an end-to-end system for remote heart rate detection from RGB video of a subject using image processing, Eulerian video magnification technique and 1D CNN.
  2. Developed a novel Deep Learning method for Brain Computer Interfacing (BCI) system towards digit recognition and classification using EEG signals
  3. Working on Deep Learning based Drug Generation and Repurposing techniques towards developing a faster and more efficient drug discovery pipeline
  4. Worked on the development of a Remote Intelligent Baby Monitoring System.
- **Research Projects at NIT Durgapur (2016-2020)**
  1. Developed a novel framework for Autonomous Brain MRI segmentation using Convolutional Neural Network and Mathematical Morphology
  2. Developed a new learning framework for ischemic stroke lesion segmentation
  3. Developed a novel Deep learning approach towards Breast Lesion Segmentation in Ultrasound Images
- **Distance Research Project at Oxford University**
  1. Developed a novel Deep Learning based solution towards autonomous detection of various skin cancers (fine-grain object recognition).

Skills:

- Programing Languages: Python, C
- Programing Basics: Data Structure and Algorithms
- Data Science: Data Analysis, Visualization, Interpretation
  Digital Image Processing, Digital Signal Processing, Computer Vision, NLP
  Machine Learning: Regression, Classification, Clustering, Ensemble Modeling, Bayesian Networks. Experienced with classical ML algorithms such as Decision Trees, Random Forest, K-NN, SVM and others
  Deep Learning: Statistical Theory of Deep Learning, Neural Networks (Dense Networks, Convolutional Networks, Recurrent Networks), Generative Modeling and State of the art techniques.
  Frameworks: PyTorch, Keras, Scikitlearn with descent knowledge of other Data Science libraries
  Cloud Computing Platform: Google Cloud Platform (GCP), Azure, Paperspace
- Embedded System and Robotics: Arduino Programming, Embedded System

Publications:

1. Contact-Less Heart Rate Detection in Low Light Videos, accepted in **ACPR 2021** (**Authors: Tamal Chowdhury**, Sukalpa Chanda, Saumik Bhattacharya, Soma Biswas and Umapada Pa)
2. Exploring the Correlation between Deep Learned and Clinical Features in Melanoma Detection, accepted in **MIUA 2021 (Authors: Tamal Chowdhury**, Angad R.S. Bajwa, Tapabrata Chakraborty, Jens Rittscher, Umapada Pal**)**
3. DCINN: Deformable Convolution and Inception Based Neural Network for Tattoo Text Detection through Skin Region accepted in **ICDAR 2021 (Authors: Tamal Chowdhury**, Palaiahnakote Shivakumara, Umapada Pal, Tong Lu, Ramachandra Raghavendra, Sukalpa Chanda**)**
4. MhURI: A Supervised Segmentation Approach to Leverage Salient Brain Tissues in Magnetic Resonance Images, accepted in **Computer Methods and Programs in Biomedicine (Authors:** Palash Ghosal, **Tamal Chowdhury,** Amish Kumar, Ashok Kumar Bhadra, Jayasree Chakraborty, Debashis Nandi**)**
5. CSNet: A New DeepNet Framework for Ischemic Stroke Lesion Segmentation, accepted in **Computer Methods and Programs in Biomedicine (Authors:** Amish Kumar, Neha Upadhyaya, Palash Ghosal, **Tamal Chowdhury,** Dipayan Das, Amritendu Mukherjee, Debashis Nandi**)**
6. Analysis of Multi-Class Classification of EEG signals using Deep Learning on MUSE Dataset, accepted in **ICPRAI 2020 (Authors:** Dipayan Das**, Tamal Chowdhury**, Umapada Pal**)**
7. Breast Lesion Segmentation in Ultrasound Images Using Deep Convolutional Neural Networks, accepted in **CALCON 2020 (Authors:** Dipannita Ghosh, Amish Kumar, Palash Ghosal, **Tamal Chowdhury**, Anup Sadhu and Debashis Nandi**)**

Personal Projects and Hackathons:

- Dual Axis Solar Tracker Using Arduino
- Medical Assistance ChatBot using Seq2Seq Model
- Implemented a vanilla Generative Adversarial Network (GAN) on CIFAR-10 dataset.
- 82% accuracy in Analytics Vidya's Ship Classification Hackathon (Within top 150).
- 84.05% accuracy in ZS Associate's Data Science Hackathon (Within top 200).
- 95.5% accuracy in Machine Hack's News Category Prediction Hackathon (Within top 10).

Certifications:

- Indian School of Ethical Hacking (05/2018 – 07/2018): Short term course on Machine Learning

- Ardent Computech (05/2018 – 07/2018): Short term course on Embedded Systems

Position of responsibility:

- **R&D Head:** Math's and Tech Club of Nit Durgapur
- Member of The Organizing Committee of Avishkar, The Tech Fest, NIT Durgapur

Hobbies and Interests:

- AI, General Intelligence and Cognitive Neuroscience
- Content Writing
- Kaggle Data Science Competitions
- Reading Books and Blogs
- Music composition