AVIJIT MITRA

(+88) 019 13039816
avipartho@gmail.com
Website

RESEARCH INTERESTS

• Deep Learning • Computer Vision • Machine Learning • NLP

EDUCATION

Master of Science in Electrical and Electronic Engineering (Ongoing) April 2017 - May 2019(Expected)
Bangladesh University of Engineering and Technology (BUET), Dhaka
CGPA: 3.75/4.00, Completed: 18 credits

Bachelor of Science in Electrical and Electronic Engineering April 2012 - February 2017
Bangladesh University of Engineering and Technology (BUET), Dhaka
CGPA: 3.78/4.00, 157.5 credits

WORK EXPERIENCE

Deep Learning Researcher, Semion Ltd., Dhaka March,2017 - present

- Providing Deep Learning solutions to potential clients
- Reproducing state of the art results from the literatures and applying them to proprietary datasets
- Design and development of necessary software infrastructures, Android app, Alexa skill

Intern, Semion Ltd., Dhaka August,2016 - December,2016

ONGOING RESEARCHWORKS

• **Deep learning based Sepsis prediction system from EHR data**
Prediction of sepsis, severe sepsis and septic shock by novel deep learning algorithms, along with finding hotspots that correlate with this prediction using layer-wise relevance propagation (LRP)

• **Online speech diarization using i-vector and x-vector features**
Online speaker diarization by Kaldi framework, using both statistical (i-vector) and DNN features (x-vector) and their comparative analysis

RESEARCH ARTICLES

[1] R. Ahsan, **A. Mitra**, S. Omar, M. Z. R. Khan, M. A. Basith. "Sol−gel synthesis of $DyCrO_3$ and 10% Fe-doped $DyCrO_3$ nanoparticles with enhanced photocatalytic hydrogen production abilities", In RSC Advances, 2018 [Link]
[2] **A. Mitra**, T. Mostafiz, R. Ur Rashid. "Photoplay: An Android Application to Stimulate Children's Cognitive Development", In 2017 IEEE Region 10 Humanitarian Technology Conference (R10-HTC) [Link]

UNDERGRADUATE THESIS

Sol−gel synthesis of $DyCrO_3$ and 10% Fe-doped $DyCrO_3$ nanoparticles and characterization of their structural,optical, magnetic properties for enhanced photocatalytic activities
$DyCrO_3$ and 10% Fe-doped $DyCrO_3$ nanoparticles, synthesized by sol-gel method, were characterized using XRD,SEM and UV-visible spectrophotometry. The doped nanoparticles show a reduced band gap (2.45 eV) compared to the undoped ones (2.8 eV). Photocatalytic degradation test shows 17% improved photocatalytic ability for the doped nanoparticles.
Supervisor: Md. Ziaur Rahman Khan, PhD, Department of Electrical and Electronic Engineering(EEE), BUET

SELECTED PROFESSIONAL PROJECTS

- **SemSepsis**, a sepsis detection GUI (Python, pyQt4) 2018
- **SemRad**, a Teleradiology Solution (Java, JavaFX, SQLite, MySQL) 2018
- **Faulty semiconductor wafer detection** from machine logs 2018
- **HealthGeek**, an Android app and **Differential Diagnoses**, an amazon Alexa skill 2017
- **Risk factors detection** for heart diseases in diabetic patients using bidirectional LSTM and CRF 2017

SELECTED OTHER PROJECTS

- End-to-end speech recognition using Baidu's DeepSpeech architecture Self 2018
- Retinal Vessel segmentation via ANN, SVM and CNN Self 2018
- Detection of Arrhythmia based on DWT using ANN, SVM and RF Biomedical Signal Processing 2018
- Gate level design, cell layout and simulation of a 3-bit Multiplier VLSI II Laboratory 2017
- Gate level design and simulation of an 8-bit Microprocessor (Modified SAP) Microprocessor Laboratory 2016
- Gesture based pong game implementation on a TFT display Control System Laboratory 2016
- Home security system via push message service Communication Laboratory 2016
- Gate level design and simulation of a 4-bit Arithmetic Logic Unit Digital Electronics Laboratory 2015

RELEVANT COURSES

Undergrad Level: Linear Algebra • Probability and Statistics • Calculus I • Calculus II • Ordinary and Partial Differential Equatioins • Digital Signal Processing I • Continuous Signals and Linear Systems • Digital Logic Design
Grad Level: Biomedical Signal Processing
Self-taught: Machine Learning (Coursera/Stanford) • Convolutional Neural Networks for Visual Recognition (Stanford) • Deep Learning Specialization-5 courses (deeplearning.ai/Coursera)

SKILLS

Programming Languages: Python, Java, C, C++, MATLAB, Verilog HDL, R, Assembly language
Machine Learning Frameworks: Tensorflow, Keras, Theano, Scikit-learn, Pytorch
Design Tools: PSPICE, Cadence Virtuoso, Proteus, Quartus, Arduino, Android studio
Other Expertise: Kaldi, Weka, Latex, Git, Microsoft Office
Os: Linux, Windows

STANDARDIZED TEST SCORES

GRE General Test:	318/340 ; Verbal 152 (P_{56}), Quantitative 166 (P_{91}), Analytical Writing 4.0 (P_{60})
TOEFL IBT:	113/120 ; Reading 30, Listening 28, Speaking 27, Writing 28

ACADEMIC HONORS

Dean's List Award	Awarded for attaining CGPA greater than 3.75
Board Scholarships	At Primary, Junior, Secondary and Higher secondary Levels
Admission Test Scholarship	For securing 83^{rd} position among 9000 applicants in BUET admission

OTHER ACTIVITIES

381^{st} among 3291 teams (Top 12%), TGS Salt Identification challenge, Kaggle 2018
12^{th} among 57 teams (Top 21%), Bengali Handwritten Digit Recognition, Kaggle 2018
2^{nd} Runner up, Inter University Project Show, BUET 2015
1^{st} Runner up, Inter School & College Science Festival, Rajuk College, Dhaka 2010
Volunteer – EEE day and RAG Program, BUET 2016
Club Affiliations – Satyen Bose Science Club, BUET Robotics Society