

PERSONAL INFORMATION



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Gender: Male | Nationality: Bangladeshi (By birth) | Residence: Australia (Student Visa – Postgraduate research with work rights)

PERSONAL STATEMENT

I am an enthusiastic, hardworking, and patient life-long learner who has experience in teaching and research at university with industrial development skills. I developed excellent critical thinking, problem solving, computer programming, communication and management skills throughout my studies and professional periods. I wish to expand and use my knowledge and experiences to contribute to the outcome based productive progresses in leading universities, institutes and industries anywhere in the world.

TEACHING EXPERIENCE

⁽²⁾ Sept. 2017 – Jan. 2023

Faculty Member (Assistant Professor², Lecturer¹) [Full time] – *Currently on study leave*

⁽¹⁾ Sept. 2014 – Aug. 2017

Department of Computer Science and Engineering (CSE)

Hajee Mohammad Danesh Science and Technology University (HSTU), Dinajpur-5200, Bangladesh. (<http://hstu.ac.bd>)

Responsibilities:

- Teaching: Theory and sessional course design, lecture material preparation, course conduction using lecturing, tutorial, demonstration, practical, workshop and seminar.
- Assessment: Exam question preparation, exam invigilation, answer script evaluation, practical experiment assessment, conducting viva voce, preparing and delivering results.
- Research: Research supervision, contribution in research and preparation for publication.

CASUAL TEACHING EXPERIENCE

⁽⁴⁾ Jul. 2022 – Nov. 2022

Casual Academic ^{1,2,3,4} [Contract]

⁽³⁾ Feb. 2022 – Jun. 2022

School of Information Technology (IT), Faculty of Science, Technology and Build Environment (SEBE)

⁽²⁾ Jul. 2021 – Nov. 2021

⁽¹⁾ Jul. 2020 – Nov. 2020

Deakin University, Melbourne Burwood Campus, Australia. (<http://deakin.edu.au>)

Responsibilities:

- Course tutoring: SIT 720: Machine Learning and Python programming tutor, course conduction and exam preparation and assessment. ^{1,2,3}
- Student HelpHub tutoring: Machine Learning and Python programming, programming in C, C++, and Database. ^{1,2,3,4}

CASUAL RESEARCH JOB EXPERIENCE

⁽²⁾ Mar. 2022 – Feb. 2023

Casual Research Assistant [Contract]

⁽¹⁾ Aug. 2021 – Dec. 2021

Deakin University, Melbourne Burwood Campus, Australia. (<http://deakin.edu.au>)

(The research and publication works had run for more than the official paid period. I was involved in this project run from Jun. 2020 – Sep. 2022 as a voluntary researcher.¹)

Involvement:

- Research and collaboration with AETMOS, Australia and Monash University, Australia on *"IoT sensor-based indoor air temperature prediction using deep ensemble machine learning: an Australian urban environment case study"*. A MAAP linkage ARC project funded by the Australian Research Council (ARC).²
- Research and collaboration with Monash University, Australia and Alfred Health, Australia on *"Design of an optimised seizure detection system for ICU patients"*.¹.

**INDUSTRIAL WORK
EXPERIENCE**

May. 2012 – Aug. 2014

Software Development Manager and Senior Software Engineer [Full time]

Advanced Apps Bangladesh Limited (AAPBD) [Currently working with AppBajar and previously worked as DROIDBD], Dhaka, Bangladesh. (<https://www.aapbd.com>)

Responsibilities:

- iOS application development with web and social network API.
- Project and team management: iOS, Android and Web team.
- Team management, client management, project management and application testing.

Feb. 2012 – May. 2012

Junior Programmer [Full time]

Kento Studios Limited, Dhaka, Bangladesh. (<http://www.kentostudios.com>)

Responsibilities:

- iOS application development and testing.
- Game design.

ACADEMIC INFORMATION

Jan. 2023 – Till Date
(Continuing)

Doctor of Philosophy (PhD) in Information Technology (IT) [and Computational Science and Mathematical Modelling (CSM)]

Deakin University, Melbourne Burwood Campus, Australia. (<http://deakin.edu.au>)

Cotutelle (joint) with

Coventry University, Coventry Main Campus, the UK. (<https://www.coventry.ac.uk>)

Program Period: 3 years (maximum completion duration 4 years)

Funding: Deakin University Post-graduate Research Scholarship (DUPRS) and PGR Studentship during the stay at Coventry University.

Research and Thesis Title: A Machine Learning Based Analysis of Sleep Patterns in Aging Using Physiological Signals

Experiences and Activities:

- Research methodology
- Python programming language
- Digital signal processing
- Machine Learning (ML) and Deep Learning (DL) with Python
- Health Informatics
- Explainable/interpretable ML.
- Exploring the relationship between sleep and aging using Bio-signal processing, Machine Learning (Deep Learning) and interpretability.

Feb. 2020 – Aug. 2022
(Awarded in Oct. 2022)

Master of Science (by Research) in Information Technology Awarded

Deakin University, Melbourne Burwood Campus, Australia. (<http://deakin.edu.au>)

Program Period: 2 years (maximum completion duration 3 years)

Funding: Bangabandhu Science and Technology Fellowship (BSTF). Funded by: Bangabandhu Science and Technology Fellowship Trust (BSTFT), The Ministry of Science and Technology, The Government of Peoples Republic of Bangladesh.

Research and Thesis Title: Minimising Electroencephalogram Channels for Epileptic Seizure Detection

Experiences and Activities:

- Research methodology
- Python programming language
- Digital signal processing
- Machine Learning (ML) and Deep Learning (DL) with Python
- Health Informatics
- Research and development in medical diagnosis and disease detection using Bio-signal processing, Machine Learning (Deep Learning) and optimization.

Jan. 2007 – Dec. 2010
(Awarded in Feb. 2012)

Bachelor of Science in Computer Science and Engineering (B.Sc in CSE) A- (3.65 out of 4.0)

Hajee Mohammad Danesh Science and Technology University (HSTU), Dinajpur-5200, Bangladesh. (<http://hstu.ac.bd>)

Program Period: 4 years (maximum completion duration 7 years. During my studentship, entire university faced the delay of 1 year and 2 months for political problem in the country)

Research and Thesis Title: J2ME English to English dictionary application with improved binary search (Indexed-Binary search) technique. (Research is conducted on the last year of the program)

Core Courses:

- Core Mathematics, Discrete and Concrete Mathematics, Fundamental Physics
- Computer Programming, Databases, Software and System Development and Engineering
- Artificial Intelligence, Machine Learning, Pattern Recognition
- Hardware, Microprocessors, Digital System Design, Electronics and Digital Electronics
- Project and thesis in the last one year

RESEARCH INVOLVEMENT

Research Interest

Machine Learning and Deep Learning in the applied fields especially- healthcare, automation, biosignal analysis, sleep and aging.

- Data Science
- Machine Learning and Deep Learning
- Bio-signal Processing & Analysis
- Epilepsy, Sleep, Aging and Environment
- Health Informatics and Biomedical InfoTech
- Disease Detection and Prediction
- Time-series Data Analysis
- Human-Computer Interaction

Research Publications (Conferences)

- "Performance Analysis of Entropy Methods in Detecting Epileptic Seizure from Surface Electroencephalograms", IEEE Engineering in Medicine & Biology Society (EMBC), 2021, Maxico City, Maxico. Link: <https://doi.org/10.1109/EMBC46164.2021.9629538c>
- "Efficient Noise Reduction and HOG Feature Extraction for Sign Language Recognition", ICAEEE, 2018, Gazipur, Bangladesh. Link: <https://doi.org/10.1109/ICAEEE.2018.8642983>
- "Indexed Binary Search based efficient search generator for J2ME English to English dictionary", ICIEV, 2014, Dhaka, Bangladesh. Link: <https://doi.org/10.1109/ICIEV.2014.6850692>

Research Publications
(Posters)

- "Deep Learning Model for Detection of Electrographic Seizures from continuous EEG in ICU patients", American Epilepsy Society (AES) Annual Conference 2021, 22 November 2021. Link: <https://cms.aesnet.org/abstractslisting/deep-learning-model-for-detection-of-electrographic-seizures-from-continuous-eeeg-in-icu-patients>

Research Publications
(Journals)

- "A LSB Based Image Steganography Using Random Pixel and Bit Selection for High Payload", IJMSC, 2021. Link: <https://doi.org/10.5815/ijmsc.2021.03.03>
- "Enhancement of Single-Handed Bengali Sign Language Recognition Based on Hog Features.", JATIT, 2020. Link: <http://www.jatit.org/volumes/Vol98No5/2Vol98No5.pdf>
- "Mapping Character Position Based Cryptographic algorithm with Numerical Conversions.", IJCSSE, 2020. Link: <https://ijcsse.org/published/volume9/issue3/p1-V9I3.pdf>
- "Pseudo Random Ternary Sequence and Its Autocorrelation Property Over Finite Field", IJCNIS, 2017. Link: <https://doi.org/10.5815/ijcnis.2017.09.07>
- "Smart Campus Using IoT with Bangladesh Perspective: A Possibility and Limitation", IJRASET, 2017. Link: <https://doi.org/10.22214/IJRASET.2017.8239>
- "Study of Abstractive Text Summarization Techniques", AJER, 2017. Link: [https://www.ajer.org/papers/v6\(08\)/ZE0608253260.pdf](https://www.ajer.org/papers/v6(08)/ZE0608253260.pdf)
- "Performance Analysis of Energy Detection Based Spectrum Sensing Over Wireless Non-Fading AWGN Channels in Cognitive Radio Network", IJSER, 2017. Link: <https://www.ijser.org/researchpaper/Performance-Analysis-of-Energy-Detection-Based-Spectrum-Sensing-Over-Wireless-Non-Fading-AWGN-Channels-in-Cognitive-Radio-Network.pdf>

SKILLS AND TOOLS

Language Skills

- Bengali: Native language
- English: Professional competence level
 - IELTS (2019): 6.5, (L,R,W,S-6.5, 6.0, 6.5, 7.0)
 - Medium of instruction and assessment at HSTU, Deakin and Coventry University.

Personal Skills

- Critical thinking- through research and development.
- Problem solving- through teaching, research and development.
- Communication- from teaching, research, team management and client management.
- Leadership- from teaching and client management.
- Management- from organising 2 IT festivals at HSTU during studies.

Programming Languages

- Python (Machine Learning and Deep Learning, Time series analysis and Signal processing)
- Objective-C (used in software development for iOS devices)
- Java, C, C++, C#, R language (used for teaching and learning)

Document Writing and
Presentation Tools

- Latex and Microsoft Word (for word processing)
- Adobe Illustrator (for graphics design)
- Latex Beamer and Microsoft PowerPoint (for presentation)

ADDITIONAL INFORMATION

Events and Sessions

- Speaker, A seminar on Higher Studies in Abroad - Journey to Australia and Research Experiences, Organized by CSE Club, HSTU; September. 2022.
- Keynote Speaker, A seminar on *Career development and future of Mobile Application Development in Bangladesh*, Organized by CSE Association, HSTU; Apr. 2015.

Scholarships and Fellowships

- # Scholarship:
 - Deakin University Post-graduate Research Scholarship (DUPRS), Deakin University, Australia.
 - Cotutelle PhD Studentship, Coventry University, the UK.
- # Fellowship:
 - Bangabandhu Science and Technology Fellowship (BSTF), Bangabandhu Science and Technology Fellowship Trust (BSTFT), Ministry of Science and Technology, Bangladesh.
 - Deakin University Post-graduate Research Scholarship (DUPRS), Deakin University, Australia.

Projects and Funding

- Research Projects:
 - Research Supervisor, *Development of three-layer network architecture to prevent web servers from DDoS attack*, Funded by IRT (Institute of Research and Training), HSTU; Jul 2019 – Jun. 2020.
 - Research Supervisor, *Analysis and design of a non-invasive way of measuring, monitoring and predicting blood-sodium concentration level using near-infrared spectroscopy*, Funded by IRT (Institute of Research and Training), HSTU; Jul 2019 – Jun. 2020.

Honours and Awards

- Cocutelle PhD Fellow, Deakin University, Australia & Coventry University, the UK, 2023.
- Best Presentation Award, Annual Conference (2021), School of IT, Deakin University.
- Best employee award in AAPBD, 2013.
- Ranked 1st from Bangladesh in the entrance exam-2013 for Masters Program in South Asian University (SAU), India, operated by SAARC (<https://www.saarc-sec.org>).
- Ranked 1st in the batch in Bachelors from CSE department at HSTU, 2012.
- Ranked 1st in the Intra-University Computer Programming Contest (CPC) at HSTU, 2009.

Memberships

- Member, Deakin University Student Association (DUSA)
- Member, Deakin University AI Society (DAIS)
- Member, Deakin University Software Engineering Club (DSEC)
- IEEE student member.
- IEEE EMBS (Engineering in Medicine and Biology Society) student member.
- Advisor and founding member, HSTU-Programmers Arena, HSTU
- Advisor, CSE Club of HSTU, HSTU

Social Networks

- LinkedIn: <https://bd.linkedin.com/in/wwmemran>
- Google Scholar: <https://scholar.google.com/citations?user=ej8d6LkAAAAJ>
- Research Gate: https://www.researchgate.net/profile/Emran_Ali
- GitHub: <https://github.com/WWM-EMRAN>
- ORCID: <https://orcid.org/0000-0003-3095-5265>

REFERENCES

Available upon request.