M. SHIFAT HOSSAIN

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ResearchGate: researchgate.net/profile/Shifat_Hossain | **Github:** github.com/ShifatHossain

Education

MASTERS OF SCIENCE IN ELECTRONICS ENGINEERING | MARCH 2019 - MARCH 2021

- **University:** Kookmin University, Seoul, Korea • **CGPA:** 4.5/4.5
- **Major:** Electronics Engineering
- **Research Interests:** Biomedical signal processing, Machine Learning, Signal processing, Digital image processing.
- **Thesis:** Glycated Hemoglobin Estimation Based on Photon Diffusion Theory

BACHELOR OF SCIENCE IN ELECTRICAL AND ELECTRONIC ENGINEERING (B. SC. ENG. IN EEE) | MARCH 2013 - MAY 2017

- **University:** Khulna University of Engineering & Technology • **CGPA:** 3.4/4.0
- **Department:** Department of Electrical and Electronic Engineering (EEE)
- **Thesis:** Physical Source Based Sound Signal Extraction from Mixed Audio Signals Using Spectral Analysis

Technical and Personal Skills

Programming Languages: C/C++ (GCC/LLVM Clang), Python, GNU Octave/MATLAB, Java.
Deep Learning Tools: Keras, TensorFlow, PyTorch.
Platform, Frameworks, and IDE: Android (Android Studio, Java), VSCode, OpenGL.
Circuit Designing, Simulation and PCB Designing: Kicad, Eagle Cad, Proteus, Designsoft TINA.
Hardware Prototype Designing: Arduino, ESP32, Embedded boards (Raspberry Pi), Atmel AVRs.
Graphics Programming, Model Designing and Simulation: FreeCad, Blender, Unity Game Engine.

Professional Experiences

RESEARCHER | KOOKMIN UNIVERSITY | MARCH 2021 – PRESENT

The research topics include noninvasive estimation of blood contents based on gray box models and Monte Carlo simulations. Develop algorithms and devices to achieve the noninvasive in vivo measurements.

GRADUATE RESEARCH ASSISTANT | KOOKMIN UNIVERSITY | MARCH 2019 – FEBRUARY 2021

Done researches on biomedical signal processing and image processing systems in this lab with hardware implementations.

LECTURER | DAFFODIL INTERNATIONAL UNIVERSITY | SEPTEMBER 2018 – FEBRUARY 2019

Courses Taught: Microprocessors and Interfacing, Control Systems, Electronic Devices and Circuit Theory, Random Signals and Processes, Power System Protection.

Standardized Tests

GRE

Date attended: July 31, 2021

Overall scaled score – 318

Quantitative – 166 (86th percentile),

Verbal – 152 (53rd percentile),

Analytical writing – 4.0 (54th percentile)

IELTS

To be appeared soon

Expected overall score: 7.0

Previous exam: November 4, 2017 (Expired)

Overall – 7.0

Listening – 8.0, **Reading** – 7.0, **Writing** – 6.5, **Speaking** – 7.0

Recent Featured Publications

- **S. Hossain**, S. S. Gupta, T.-H. Kwon, and K.-D. Kim, "Derivation and Validation of Gray-Box Models to Estimate Noninvasive In-vivo Percentage Glycated Hemoglobin Using Digital Volume Pulse Waveform," Scientific Reports, Jun. 2021, doi: 10.1038/s41598-021-91527-2. (Link)
- **S. Hossain**, C. A. Haque, and K.-D. Kim, "Quantitative Analysis of Different Multi-Wavelength PPG Devices and Methods for Noninvasive In-Vivo Estimation of Glycated Hemoglobin," Applied Sciences, vol. 11, no. 15, Art. no. 15, Jul. 2021, doi: 10.3390/app11156867. (Link)
- S. Sen Gupta, **S. Hossain**, and K.-D. Kim, "HDR-Like Image from Pseudo-Exposure Image Fusion: A Genetic Algorithm Approach," IEEE Transactions on Consumer Electronics, vol. 67, no. 2, pp. 119–128, May 2021, doi: 10.1109/TCE.2021.3066431. (Link)
- P. P. Banik, **S. Hossain**, T.-H. Kwon, H. Kim, and K.-D. Kim, "Development of a Wearable Reflection-Type Pulse Oximeter System to Acquire Clean PPG Signals and Measure Pulse Rate and SpO2 with and without Finger Motion," Electronics, vol. 9, no. 11, Art. no. 11, Nov. 2020, doi: 10.3390/electronics9111905. (Link)

Recent Projects

- **EMBEDDED WEARABLE DEVICE FOR NONINVASIVE GLYCATED HEMOGLOBIN ESTIMATION (2020)**

  Designed an embedded wearable device to measure the amount of glycated hemoglobin in blood noninvasively.
- **MOBILE CAMERA BASED FINGERTIP DVP SIGNAL ACQUISITION SYSTEM (2019)**

  Developed an Android application to record 3-wavelength Digital Volume Pulse (DVP) signals directly from the mobile camera sensor.

Honors and Awards

- The presentation on the paper titled "Analysis of national patent statistics for Visual-MIMO" received the best presenter award in a conference arranged by Kookmin Unniversity.
- The poster presentation on the paper titled "Statistical Analysis of IP Documents on "Artificial Neural Network" from Google Patents Database" received the best presenter award in an academic congress arranged by Kookmin University.
- Dr. Fatima Rashid Best Paper Award was given to the paper titled "n Autonomous Robot: Using ANN to Navigate in a Static Path".
- Technical Scholarship was awarded from Khulna University of Engineering and Technology (KUET) for excellence in academic performances.

Language Proficiency

• **Bangla** (Bangladesh, Native) • **English** (Proficient) • **Korean** (Beginner)