

## SALEH AHMED KHAN

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### INTERESTS

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Nanofabrication, Characterization and Device Testing, Computational Materials and Devices Simulation, Embedded Systems and Sensors

### ACADEMICS

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<b>Ph.D. in Electrical Engineering</b> University of Massachusetts Lowell CGPA: 4.00/4.00 (upto 2 <sup>nd</sup> semester)	January, 2024 – Present
<b>B.Sc. in Electrical and Electronic Engineering</b> Bangladesh University of Engineering and Technology, Dhaka GPA: 3.71/4.00 Major: Electronics	March, 2018 – May, 2023

### STANDARDIZED TEST SCORES

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- **GRE:** Analytical: 4/6, Verbal: 157/170, Quant: 162/170, **Total: 319/340**
- **TOEFL:** Reading: 30/30, Listening: 28/30, Speaking: 22/30, Writing: 27/30, **Total: 107/120**

### RESEARCH EXPERIENCE

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- **Developing Ultrawide Bandgap  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> Semiconductors and Devices for High-Power and Extreme Environment Applications**

Supervisor: Dr. A F M Anhar Uddin Bhuiyan

The investigation of LPCVD growth method and innovative nanofabrication device structures to innovate ultrawide bandgap semiconductor devices capable for operating at high voltage and high-power densities in extreme radiation environments.

- **First Principles Investigation of Stability, Electronic and Optical Properties of Chemically Functionalized Group-III Nitride Monolayers**

**Undergraduate Thesis**, Supervisor: Dr. Quazi Deen Mohd. Khosru.

The investigation of different modifications (Surface Functionalization, Transition Metal Doping) of 2D hexagonal nitride (h-BN, h-AlN, h-GaN, h-InN) monolayers in an attempt to find enhanced qualities for optical devices and gas sensing applications using Vienna Ab-initio Simulation Package (VASP)

### PUBLICATIONS

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- Khan, S. A., Ibrelijic, A., Margiotta, S., & Bhuiyan, A. F. M. (2025). **Low-pressure CVD grown Si-doped  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> films with promising electron mobilities and high growth rates**. Applied Physics Letters, 126(1).
- Khan, S. A., Saha, S., Singisetti, U., & Bhuiyan, A. F. M. (2024). **Radiation resilience of  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> Schottky barrier diodes under high dose gamma radiation**. Journal of Applied Physics, 136(22).
- 2023 International Conference on Computer and Information Technology – Saleh Ahmed Khan, Tiasa Mondal, Sadat Tahmeed Azad, Abdullah Jubair Bin Iqbal, Sajid Muhammin Chowdhury, “**Internet of Things (IoT) Based Bangla Calendar Clock**”

## TECHNICAL EXPERIENCE

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**Graduate Research and Teaching Assistant**, ECE Department  
University of Massachusetts Lowell  
Conducting research on the selected research topic and assisting faculty members in carrying out teaching duties

January 2024 – Present

**Intern**, AIC and RTL Department  
ULKASEMI Pvt. Limited  
Learning standard industry practices of VLSI. Designing an industry OP-AMP and writing a datasheet - [Link](#)

15 December 2022 – 15 March 2023

**Intern**, R&D - Internet of Things (IoT)  
Inovace Technologies Limited  
Learning the circuits and codes of multiple products of the company, e.g. Biometric Attendance, Smart Parking System

1 November 2021 – 5 January 2022

## SKILLS

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- **Nanofabrication and Materials Characterization**

LPCVD Systems, Surface Characterizations (SEM and AFM), Structural Characterizations (XRD, Raman Spectroscopy, XPS), Electrical Characterizations of Devices

- **Programming and Circuits Design**

C and C++, MATLAB and Simulink, Python (ML/DL Algorithms – TensorFlow, UI Design – Kivy), Assembly language (ARM v7, v8), Google Colab, Verilog and SystemVerilog (ModelSim), Cadence Virtuoso, Cadence Stimulus

- **Embedded Systems**

Arduino Interfacing, STM32 Interfacing, Robot Operating System (ROS), PCB design (Proteus), Managing Single-Board Computer Systems (Raspberry Pi, Nvidia Jetson Xavier), Working on Linux – Ubuntu

- **Simulation Software**

Vienna-Ab-Initio Simulation Package (VASP), Quantum Espresso, Materials Studio, Ansys Lumerical, PSAF, OrCAD PSpice, Silvaco TCAD

- **Language and Soft Skills**

English (Intermediate), Leadership, Team Management, Interdisciplinary Coordination, Competitiveness, Professional Presentation

- **Miscellaneous**

AutoCAD, Video editing (Da Vinci Resolve), 3D Modelling and Animation (Blender)

## SELECTED COURSEWORK

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- **Graduate**

Quantum Electronics for Engineers, Solid State Devices, Power Electronics

- **Academic**

VLSI Circuits Design, Semiconductor and Nano Devices, Optoelectronics, Fabrication Technology, Microprocessors and Embedded Systems, Analog Integrated Circuits Design, Compound Semiconductor Devices, Numerical Techniques (MATLAB), Communication Systems, Electrical and Electronic Circuits

## UNDERGRADUATE PROJECTS

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|--|----------------------|
| • RV32i Core with Serial Peripheral (SPI) Communication Interface                      | <a href="#">Link</a> |
| • Modelling and Simulation of the Performance of Different Types of Photovoltaic Cells | <a href="#">Link</a> |
| • Internet of Things (IoT) Based Bangla Calendar Clock                                 | <a href="#">Link</a> |
| • Designing and Simulation of a High Speed LVDS Receiver and Deserializer              | <a href="#">Link</a> |
| • Post Disaster Surveillance and Damage Assessment from Aerial Imagery using a Drone   | <a href="#">Link</a> |
| • Real Time Bangla Sign Language Detection using Supervised Deep Learning Models       | <a href="#">Link</a> |

## SCHOLARSHIP AND AWARDS

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**RISE Student Research Grant, BUET**, for most prominent thesis topic amongst undergraduate students.

**EEE Faculty Dean's List Award, BUET**, for obtaining a GPA of 3.75 of higher in two consecutive terms.

## OTHER NOTABLE PROJECTS AND COMMUNITY WORK

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- **Instructor for GUI Design and Sensor Interfacing:** Workshops arranged by Team Interplanetar to instruct freshers on the basics of interfacing sensors and embedded systems programming.
- **VLSI Design Competitions:** Participating in VLSI design competitions on design of System on Chip modules and analog systems and circuits. Notable achievements are, VLSI Day 2022 – United International University – Champion, VLSI Design Competition – Neural Semiconductor – 2ND Runners Up, VLSIthon – EEE DAY 2023 – Champions.
- **Automated Wheelchair for Enhanced Accessibility and Empowerment of the Disabled:** Modification and Automation of a standard medical wheelchair with battery powered locomotion and voice and bluetooth control (from smartphone). Sponsored by Ankur Foundation.
- **EEE DAY 2023 Grand Visualizer:** An 8-band equalizer that analyzes the real-time audio feed from the stage, 8x8 dots (Christmas Light Patches) arranged on a 12 storied building.
- **Cover Artist – Ekushey Book Fair:** Cover artist for a book on Rabindranath Tagore.

## REFERENCES

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### Dr. A F M Anhar Uddin Bhuiyan

Assistant Professor

Department of Electrical and Computer Engineering  
University of Massachusetts Lowell  
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### Dr. Quazi Deen Mohd Khosru

Professor

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