

SHADMAN SHAHID

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CAREER SUMMARY

A Graduate from Bangladesh University of Engineering and Technology, majoring in Electronics Engineering, with over 2 years of job experience in **Photonics** and **Machine learning**. Interested in the research of **photonic technologies** for **state-of-the-art computational applications**. Adept in **electromagnetic FDTD technique**, **nano-electronic device modelling** in MATLAB/Python, **Deep learning algorithms** and **VLSI design tools**, Enjoys basketball, tutoring and graphic designing in spare time.

PROFESSIONAL EXPERIENCE

Department of Computer Science and Engineering

BRAC University [↗](#)

C. LECTURER

Dhaka, Bangladesh

May 2023 – Present

- Courses Taught: "Electronic Devices and Circuits", "Circuits and Electronics" and "Digital Electronics and Pulse Techniques"

MIS Department

Advanced Chemical Industries (ACI) Limited [↗](#)

MACHINE LEARNING ENGINEER

Dhaka, Bangladesh

July 2022 – Aug 2023

- Implemented a **sentiment analysis dashboard** from newspaper data **scraped from webpages** of popular Bangla dailies for tracking the company reputation, relevance and presence
- Developed a **retail-product embedding model**, for more natural and up-to-date prediction of product similarity and recommendation.
- Updated and maintained the **Personalized promo and customer lapse dashboard** for ACI-logistics.
- Developed a rudimentary **chatbot** for ACI-Logistics using **Haystack framework** with state-of-the-art LLMs.

Nanophotonics Research Group [↗](#)

Department of Electrical and Electronic Engineering,
Bangladesh University of Engineering and Technology (BUET)

RESEARCH ASSISTANT

Dhaka, Bangladesh

March 2021 – Feb 2022

- *Primary research focus:* Physics driven research of **periodic hole array designs** for Tamm State based **plasmonic lasers**
- Authored funding proposals related to **solar photovoltaic (PV) system optimization**, **floating solar PV systems** and **flat panel display innovation**
- Undergraduate student mentor for the lab group.

EDUCATION

Bangladesh University of Engineering and Technology

M.Sc in Electrical and Electronic Engineering

CGPA - 3.75 on a scale of 4 (Theory courses completed)

Dhaka, Bangladesh

Ongoing

Bangladesh University of Engineering and Technology

B.Sc in Electrical and Electronic Engineering

CGPA - 3.86 on a scale of 4 (Top 6%, Position - 14 / 215)

Dhaka, Bangladesh

Graduated - Feb 2021

Notre Dame College

HIGHER SECONDARY CERTIFICATE: GPA - 5 ON A SCALE OF 5

Dhaka, Bangladesh

Graduated – Aug 2015

RESEARCH FOCUS

Photonic design optimization, || Photonic integrated circuit, || Nanophotonics and plasmonics ||
Machine learning techniques in photonic design, || Photonic inverse design, || Computational electromagnetics

RESEARCH PUBLICATIONS

A merged lattice metal nanohole array based dual mode plasmonic laser with an ultra-low threshold [↗](#)

NANOSCALE ADVANCES, ROYAL SOCIETY OF CHEMISTRY (UK)

Dec 2021

- Authors: Shadman Shahid, Shahed-E- Zumrat and Muhammad Anisuzzaman Talukder
- **Dual-mode Tamm plasmon resonance** – observed at the interface between a multi-layer dielectric stack and a metal film – is exploited to generate dual-wavelength lasing using a **merged lattice nanohole array**.

Dual-wavelength hybrid Tamm plasmonic laser [↗](#)

OPTICS EXPRESS, OPTICA PUBLISHING GROUP

Jun 2022

- Authors: Shahed-E- Zumrat, Shadman Shahid and Muhammad Anisuzzaman Talukder
- Simultaneous excitation of **(hybrid) photonic and Tamm plasmonic modes/states** come together in a double DBR - metal structure for efficient dual-mode lasing.

PROJECTS

Retail product embedding generation

for product recommendation [↗](#) | [Project Documentation \(WIP\)](#)

Feb 2022 - Feb 2023

- Developed a product embedding model for a more natural product recommendation and filtering. Used a customized derivative of `word2vec` called `item2vec` to train from raw shwapno retail invoice data. (WIP: Work in progress)

Personalized-Promo Dashboard [↗](#)

Jan 2022 - Sep 2023

- Dashboard for auto promo generation based on next-month purchase and lapse prediction from retail data. Automated periodic (monthly) retail-invoice data extraction with a Cron-job script and database procedures. Used LSTM and XGBoost for prediction.

Sentiment Analysis Dashboard [↗](#) | [Project Documentation \(WIP\)](#)

Nov 2022 - Apr 2023

- A dashboard that analyzes the sentiment of text data scraped from popular Bangla dailies. The dashboard was built using Python and Django. Scraping was done with BeautifulSoup and Selenium. Used the bertweet-base-sentiment-analysis and gensim package to model articles to topics. (WIP: Work in progress)

Inverse design of thin film stacks through a generative

residual global optimization network Res-GLONet [↗](#) | [Project Report](#)

April 2022

- Faster optimization of a customized thin film dielectric stack for a given response, with the help of a generative neural network coupled to a Transfer Matrix Method (TMM) solver. **Idea credit:** Jiaqi Jiang and Professor Jonathan Fan of Stanford University

An Investigation into Dual-mode Lasing Response in planar multi-layer Plasmonic laser Systems [↗](#)

UNDERGRADUATE THESIS

Dec 2020

- Two design approaches - both already published as mentioned previously - have been proposed in order to elicit dual mode lasing response in planar multilayer plasmonic systems for nanophotonic applications.
- Supervised by: Professor Dr. Muhammad Anisuzzaman Talukder

Hamming error correcting code generator and reciever [↗](#) | [Project Report](#)

Dec 2020

- This project shows a prototype of a single forward error correcting system based on least Hamming distance principle. The system was implemented in Verilog via Cadence Innovus solution.

A more extensive list of projects can be found [here](#)

TECHNICAL AND LANGUAGE SKILLS

Programming Languages	Python, Verilog, C, C++, MATLAB
Database Management Software	Microsoft SQL server
Tools & Softwares	MATLAB, Lumerical Suite, Cadence Suite, OnShape, COMSOL Multiphysics, Microsoft Excel
Deep Learning Tools	Pytorch, Tensorflow, Keras, Scikit-learn, Spacy, etc
Web development frameworks	Django, Pelican
Editing and Designing Softwares	Origin Pro, Adobe Illustrator, Photoshop
Markup Languages	LaTeX, HTML, CSS
Languages	English (Very Good -IELTS Band Score 8), Bengali (Native)

AWARDS AND ACHIEVEMENTS

- Nominated in **University Dean's list** for three out of four levels of undergraduate study. BUET, Dhaka
- University Merit Scholarship** for seven out of eight terms of undergraduate study. BUET, Dhaka
- 1st prize** at Inter University Poster Presentation Contest, at **Essonance 2017** [IUT, Gazipur, Bangladesh.](#)

LEADERSHIP AND VOLUNTARY EXPERIENCE

IEEE BUET Student Branch [↗](#)

CHAIRPERSON - IEEE IAS BUET SB Chapter

July 2019 - Mar 2021

PROGRAM COORDINATOR

Sep 2017 - Jul 2019

VOLUNTEER

Jan 2017 - Jul 2017

Notre Dame Debating Club [↗](#)

Notre Dame College, Dhaka

ENGLISH DEBATER

Sep 2013 - Dec 2015

REFERENCES

Dr. Muhammad Anisuzzaman Talukder [↗](#)

PROFESSOR,

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Bangladesh University of Engineering and Technology

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Dr. Samia Subrina [↗](#)

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