# **SHADMAN SHAHID**

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### **CAREER SUMMARY**

A PhD student from the University of Southern California, specializing in nanophotonics, with over 3 years of job experience in **Photonics**, **Machine learning** and **teaching**. Interested in the research of **photonic technologies** for **state-of-the-art energy and computational applications**. Adept in **electromagnetic FDTD technique**, **nano-electronic device modelling in MATLAB/Python**, **Deep learning algorithms** and **VLSI design tools** etc. Enjoys basketball, tutoring and graphic designing in spare time.

#### **EDUCATION**

University of Southern California PhD in Electrical Engineering Supervised by - Dr. Michelle Povinelli	Los Angeles, California, USA Ongoing
Bangladach University of Engineering and Technology	Dhaka Danaladash
M.Sc. in Electrical and Electronic Engineering CGPA - 3.75 on a scale of 4 (Theory courses completed)	Graduated - Jan 2025
Bangladesh University of Engineering and Technology	Dhaka, Bangladesh
<b>B.Sc in Electrical and Electronic Engineering</b> CGPA - 3.86 on a scale of 4 (Top 6%, Position - 14 / 215)	Graduated - Feb 2021
PROFESSIONAL EXPERIENCE	
Department of Computer Science and Engineering	
BRAC University 🖸	Dhaka, Bangladesh
Courses Taught: "Electronic Devices and Circuits", "Circuits and Electronics" and "VLSI Design"	Muy 2023 – Dec 2024
MIS Department	
Advanced Chemical Industries (ACI) Limited	Dhaka, Bangladesh July 2022 – Aug 2023
Nanophotonics Research Group 🗹	
Department of Electrical and Electronic Engineering,	
Research Assistant	Dhaka, Bangladesh March 2021 – Feb 2022
RESEARCH FOCUS	
Photonic design optimization,    Photonic integrated circuit,    Nanophotonics and plasmonics    Machine learning techniques in photonic design,    Photonic inverse design,    Computational electroma	agnetics
RESEARCH PUBLICATIONS	
Wavelength selective beam-steering in a dual-mode multi-layer plasmonic las	er 📝
<ul> <li>Authors: Mahin Ahamed, Md. Nasim Afroj, Shadman Shahid, and Muhammad Anisuzzaman Taluko</li> </ul>	der May 2024
Dual-wavelength hybrid Tamm plasmonic laser 🖓	
Optics Express, Optica Publishing Group	Jun 2022
Authors: Shahed-E- Zumrat, Shadman Shahid and Muhammad Anisuzzaman Talukder	
<ul> <li>Simultaneous excitation of (hybrid) photonic and Tamm plasmonic modes/states come together for efficient dual-mode lasing.</li> </ul>	in a double DBR - metal structure
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 Ahisuzzaman Talukder	atria ata ali anadia maatal filma ia
• Dual-mode family plasmon resonance — observed at the interface between a multi-layer diele exploited to generate dual-wavelength lasing using a merged lattice nanohole array.	und slack and a metal mm — is
Beyond periodicity: tailoring Tamm resonances in plasmonic nanohole arrays	for multimodal lasing 🗹
NEW JOURNAL OF PHYSICS, INSTITUTE OF PHYSICS (IOP)     Authors: Shadman Shahid and Muhammad Anisuzzaman Talukder	Jan 2025
<ul> <li>Explores the different configurations of nanohole arrays in Tamm resonances and their contribution</li> </ul>	on to multimodal lasing.

#### **PROJECTS** Review on the physics and application of sub-wavelength holes on metal films | Report Sep 2021 - Dec 2021

• The physics and applications of metal Nanohole Arrays (NHAs), focusing on their transmission and dispersion characteristics, are explored. The document reviews devices utilizing the optical properties of metal NHAs.

#### Inverse design of thin film stacks through a generative residual global optimization network Res-GLONet [] Project Report

• 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

• 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.

### **Retail product embedding generation** for product recommendation **C** | Project Documentation (WIP)

• 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)

# Sentiment Analysis Dashboard C | Project Documentation (WIP)

• 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)

# A more extensive list of prejects can be found here

# **TECHNICAL AND LANGUAGE SKILLS**

Programming Languages Python, Verilog, C	C++, MATLAB
Database Management Software Microsoft SQL serv	/er
Tools & Softwares MATLAB, Lumerica	al Suite, Meep, Cadence Suite, OnShape, COMSOL Multiphysics, Microsoft Excel
Deep Learning Tools Pytorch, Tensorflo	w, Keras, Scikit-learn, Spacy, etc
Web development frameworks Django, Pelican	
Editing and Designing Softwares Origin Pro, Adobe	Illustrator, Photoshop
Markup Languages ETEX, HTML, CSS	
Languages English (Very Goo	d -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 BUET, Dhaka
- University Merit Scholarship for seven out of eight terms of undergraduate study.
- 1st prize at Inter University Poster Presentation Contest, at Essonance 2017

# LEADERSHIP AND VOLUNTARY EXPERIENCE

#### IEEE BUET Student Branch 🗹

**CHAIRPERSON - IEEE IAS BUET SB Chapter PROGRAM COORDINATOR** VOLUNTEER

# Notre Dame Debating Club

**ENGLISH DEBATER** 

#### REFERENCES

# Dr. Michelle Lynn Povinelli 📿

**PROFESSOR AND VICE CHAIR** Ming Hsieh Department of Electrical and Computer Engineering University of Southern California

Email: povinell@usc.edu Contact No: +1213-740-8682

#### Dr. Muhammad Anisuzzaman Talukder 📝 PROFESSOR.

Department of Electrical and Electronic Engineering Bangladesh University of Engineering and Technology Email: anis@eee.buet.ac.bd Contact No: +8801743731065

July 2019 – Mar 2021 Sep 2017 – Jul 2019 Jan 2017 – Jul 2017

IUT, Gazipur, Bangladesh.

Notre Dame College, Dhaka Sep 2013 – Dec 2015

Feb 2022 - Feb 2023

April 2022

Dec 2020

Nov 2022 - Apr 2023