

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

University of Southern California

M.Sc. in Electrical and Computer Engineering

Los Angeles, California, USA

Graduated - Aug 2026

Bangladesh University of Engineering and Technology

M.Sc. in Electrical and Electronic Engineering

CGPA - 3.75 on a scale of 4

Dhaka, Bangladesh

Graduated - Jan 2025

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

PROFESSIONAL EXPERIENCE

Povinelli Nanophotonics Laboratory

University of Southern California 

GRADUATE RESEARCHER

Los Angeles, California

Jan 2025 – Current

Department of Computer Science and Engineering

BRAC University 

LECTURER

- Courses Taught: "Electronic Devices and Circuits", "Circuits and Electronics" and "VLSI Design"

Dhaka, Bangladesh

May 2023 – Dec 2024

MIS Department

Advanced Chemical Industries (ACI) Limited 

MACHINE LEARNING ENGINEER

Dhaka, Bangladesh

July 2022 – Aug 2023

Nanophotonics Research Group

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

RESEARCH ASSISTANT

Dhaka, Bangladesh

March 2021 – Feb 2022

RESEARCH FOCUS

Photonic design optimization, || Nanophotonic device fabrication, || Mid-infrared nanophotonics, || Characterization of nanophotonic devices || Photonic inverse design, || Computational electromagnetics

RESEARCH PUBLICATIONS

Asymmetry-Enabled Dual-Resonant Mid-Infrared Absorption in Subwavelength Perforated Metal Structures

NANO LETTERS, AMERICAN CHEMICAL SOCIETY (ACS)

April 2026

- Authors: Silvia Guadagnini, **Shadman Shahid**, Zarko Sakotic, Divya Hungund, Daniel Wasserman, and Michelle Povinelli

Coupled two-dye gain-medium-based photonic nanolasers for short-pulse generation

PHYSICAL REVIEW A, AMERICAN PHYSICAL SOCIETY (APS)

Jul 2025

- Authors: **Shadman Shahid** and Muhammad Anisuzzaman Talukder
- Developed and modeled two-dye-gain-medium nanolasers capable of generating sub-picosecond pulse trains and frequency combs by integrating a novel coupled-dye saturable-gain model with time-domain simulations.

Beyond periodicity: tailoring Tamm resonances in plasmonic nanohole arrays for multimodal lasing

NEW JOURNAL OF PHYSICS, INSTITUTE OF PHYSICS (IOP)

Jan 2025

- Authors: **Shadman Shahid** and Muhammad Anisuzzaman Talukder
- Explores the different configurations of nanohole arrays in Tamm resonances and their contribution to multimodal lasing.

Wavelength selective beam-steering in a dual-mode multi-layer plasmonic laser

OPTICS EXPRESS, OPTICA PUBLISHING GROUP

May 2024

- Authors: Mahin Ahamed, Md. Nasim Afroj, **Shadman Shahid**, and Muhammad Anisuzzaman Talukder

Dual-wavelength hybrid Tamm plasmonic laser

OPTICS EXPRESS, OPTICA PUBLISHING GROUP

Jun 2022

- Authors: Shahed-E- Zumat, **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.

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- Zumat 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.

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

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 receiver | 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	Python, MATLAB, C/C++, Verilog
Photonics & Device Simulation	Lumerical Suite, Meep (FDTD), COMSOL Multiphysics, Cadence Suite
Machine Learning	PyTorch, TensorFlow, Keras, Scikit-learn
Scientific Writing & Visualization	LaTeX, Origin Pro, Adobe Illustrator
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

ENGLISH DEBATER

Notre Dame College, Dhaka

Sep 2013 – Dec 2015

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

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