OMID **ABED**

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OBJECTIVE

A highly motivated engineer, skilled in electromagnetic/photonic device design and familiar with artificial intelligence; with 2 years' experience in cutting-edge research.

EDUCATION

MSc in Electrical Engineering – Fields and Waves | University of Tehran 17.00 / 20
2017 – 2020
Thesis: Realization of Optical Beam Steering for Integrated Lidars. (more detail here)
Defended on 15 Sep 2020 with ''Excellent'' grade.
Advisor: Dr. Leila Yousefi

BSc in Electrical Engineering - Telecommunications | Azad University (with honors) 18.08 / 20
Last two years GPA: 18.49/20, 2012 – 2016
Final Project: Study and Simulation of OFDM systems.

EXPERIENCE

Research Assistant | Nanophotonics and Metamaterial Research Group – University of Tehran
2018 – 2020 (http://www.nanophotonics.ir)

- ✓ Designed a novel tunable metasurface using phase change materials and graphene for beam steering in the near-IR range.
- ✓ Designed a novel tunable metasurface using transparent conducting oxides for 2-dimensional beam steering in the near-IR range.
- ✓ Performed a thorough literature review about suitable beam-steering methods for integrated lidars.
- ✓ Achieved a solid background in machine learning (especially deep learning) to use it in further researches e.g., inverse deign, optical neural networks.
- ✓ Performed numerous numerical Multiphysics analysis on nanophotonic structures (electromagnetic, AC/DC, Thermal, and semiconductor analysis).
- ✓ Collaborated with other students in the lab or research meetings.
- ✓ Redesigned and updated group website.

Chief Teaching Assistant | University of Tehran (Engineering Electromagnetics) 2019- 2020

- ✓ Chief teaching assistant in engineering electromagnetics course for undergraduate students.
- ✓ Designed homework problems.

Teaching Assistant | University of Tehran (Circuit laboratory) 2017-2018

- ✓ Teaching assistant in circuit laboratory course for undergraduate students.

Microcontroller programming Intern| Nira System. 2016

- ✓ Learning fundamentals of microcontrollers and helping senior engineers for programming AVR Microcontrollers.

PUBLICATIONS

1. Abed, O., Yousefi, L. "Tunable metasurfaces using phase change materials and transparent graphene heaters". Optics Express 28.23 (2020): 33876-33889. https://doi.org/10.1364/OE.404103
2. Abed, O., Yousefi, L. "Free Space Beam Shaping Using phase-change Reconfigurable metasurfaces". Accepted in 3rd West Asian Symposium on Optical and Millimeter-wave Wireless Communications. (Preprint PDF in here)

Manuscripts in preparation

Abed, O., Yousefi, L. "Double-Axis Optical Beam Steering Enabled by Voltage Controlled Tunable Metasurface". (Abstract in here)

SKILLS

- COMSOL MULTIPHYSICS
  - ✓ High frequency simulations
  - ✓ AC/DC simulations
  - ✓ Semiconductors Simulations
  - ✓ Heat Transfer Simulations
- PYTHON
  - ✓ Numpy
  - ✓ Pandas
  - ✓ Sklearn
- MATLAB
  - ✓ 5 years' experience in scientific programming
- OTHER
  - ✓ Lumerical FDTD
  - ✓ CST studio suite
  - ✓ Microsoft Office
  - ✓ Adobe illustrator

SELECTED COURSES DURING MASTER PROGRAM

- Theory of Electromagnetics
- Adv. Eng. Mathematics
- Fundamentals of Photonics
- Metamaterials
- Fourier Optics
- Terahertz Technology
- Adv. Antennas
- Numerical Methods in Electromagnetics

SELECTED PRESENTATIONS

- LiDAR and Its applications in autonomous cars
- Graphene and its applications in nanophotonics
- Computer generated holography
- Wave propagation in circular tunnels
- Backward wave oscillators
- Design and Simulation of Leaky Wave Antennas

HONORS

- Achieved rank 25 in national university entrance exam (Konkur) for MSc in electrical engineering, among more than 30,000 competitors (in top 0.1%).
- Former member of Iran rowing national team. Winner of a bronze and a silver medal in Asian Junior Championships.

SCHOLARSHIPS

Elite athletes Scholarship for domestic bachelor studies | Azad University (2012-2016)
Governmental scholarship for domestic master studies | University of Tehran (2017-2020)

CERTIFICATES

Silicon Photonics Design, Fabrication and Data Analysis
- ✓ Conducted by Sharif University of Technology (certificate)

Deep learning Specialization
- ✓ Conducted by Coursera (certificate)

Machine Learning
- ✓ Authorized by Stanford University – Conducted by Coursera (certificate)

LANGUAGES

English: Fluent
TOEFL Score: 104
(Reading: 28/30 – Listening: 28/30 – Speaking: 22/30 –Writing: 26/30)

Persian: Native

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