






# OMID ABED

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## OBJECTIVE

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



## EDUCATION

**MSc in Electrical Engineering – Field and Waves | University of Tehran 17.00 / 20 (thesis excluded)**  
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**  
2012 – 2016

*Final Project:* Study of OFDM systems



## EXPERIENCE

**Research Assistant | Nanophotonics Research Group – University of Tehran**

2018 – 2020 (<http://www.nanophotonics.ir>)

- ✓ Designed a novel tunable beam steering device using phase change materials in the near-IR range.
- ✓ Designed a novel tunable 2-dimensional beam steering device using transparent conducting oxides in 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 design, optical neural networks.
- ✓ Performed numerous numerical Multiphysics analysis on nanophotonic structures (electromagnetic, AC/DC, 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

3. 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 Analysis
  - ✓ 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



## 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.



## CERTIFICATIONS

### 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



## REFERENCES

### Dr. Leila Yousefi

Associate Professor, University of Tehran (Tehran, Iran)

lyousefi@ut.ac.ir

<http://nanophotonics.ir/>

She was my master's thesis advisor.

### Dr. Mohammad Neshat

Assistant Professor, University of Tehran (Tehran, Iran)

mneshat@ut.ac.ir

<http://thz-photoelectronics.com/index.htm>

One of my university professors. I passed two important courses offered by him.