

Nasrin ABDOLLAHI

Electrical and Computer Engineering Ph.D. Candidate | Optics and Photonics Researcher

 Department of Electrical and Computer Engineering, NC State University

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OBJECTIVE

Ph.D. candidate in Electrical and Computer Engineering at NC State University with research experience in **plasmonics**, **nano-optics**, **photonics** and **electromagnetics**. My work focuses on optical **nanotweezers**, nanoparticle trapping and photonic platforms for biosensing and translational applications. I am seeking internship opportunities in research and engineering where I can apply my background.

RESEARCH INTERESTS

- > Optical tweezers
- > Plasmonics and nano-optics
- > Photonics
- > Metamaterials and metasurfaces
- > Electromagnetic modeling
- > Biosensing and translational optical platforms

EDUCATION

Present Aug 2023	Ph.D. in Electrical and Computer Engineering North Carolina State University, RALEIGH, USA <ul style="list-style-type: none">> GPA : 3.92/4.00> Thesis Title : Dynamic Optical Systems> Advisor : Dr. Abraham Vazquez-Guardado <p>Optics Photonics Nano Tweezers Plasmonic</p>
Aug 2019 Sep 2016	M.Sc. in Electrical Engineering (Communications) Shiraz University, SHIRAZ, Iran <ul style="list-style-type: none">> GPA : 3.21/4.00 (Ranked 2nd)> Admitted as an Exceptional Talent> Thesis Title : Analysis, simulation and fabrication of a horn antenna in the presence of a metasurface as an interior lens and using a suitable optimization algorithm for enhancement of antenna parameters> Advisor : Dr. Farzad Mohajeri <p>Metasurface Metamaterial Antenna</p>
Jul 2016 Sep 2012	B.Sc. in Electrical and Computer Engineering Shiraz University, SHIRAZ, Iran <ul style="list-style-type: none">> GPA : 3.5/4.00 (Ranked 4th)> Thesis Title : An Investigation on the Improvement of Solar Cells Performance Using Plasmonic Waveguide Structure> Advisor : Dr. Abbas Alighanbari <p>Plasmonic Solar Cell</p>
2012 2008	Nejabat High School, BORAZJAN, Iran <ul style="list-style-type: none">> GPA : 19.87/20.00> Ranked among the top 0.2% in Iran's national university entrance exam in Mathematics and Physics and Foreign Language .

HONORS AND AWARDS

- > Graduate Merit Award (GMA), College of Engineering, North Carolina State University, 2023.
- > Ranked 2nd among M.Sc. Electrical Engineering students admitted to Shiraz University, 2019.
- > Ranked 4th among B.Sc. Electrical Engineering students admitted to Shiraz University, 2016.
- > Exempted from the M.Sc. entrance exam and admitted to Shiraz University as a talented graduate student, 2016.
- > Ranked among the top 0.2% in Iran's National University Entrance Exam in Mathematics and Physics and Foreign Language, 2012.

PUBLICATIONS

Ongoing

- > **Abdollahi, Nasrin**, and Abraham Vazquez-Guardado. "Particle-Aware Design of Plasmonic Nanotweezer Devices," **ACS Photonics**, 2026.

Published

- > **Abdollahi, Nasrin**, and Abraham Vazquez-Guardado. "Engineering Trapping Efficiency in Plasmonic Tweezers via Nanoparticle Size and Material," in **Conference on Lasers and Electro-Optics**, Optica Publishing Group, 2026.

- > **Abdollahi, Nasrin**, and Abraham Vazquez-Guardado. "Trapping Efficiency Optimization in Plasmonic Optical Nanotweezers for Translatable Applications" in **Frontiers in Optics + Laser Science 2025**, Technical Digest Series, Optica Publishing Group, paper FM1E.4, 2025.
- > **Abdollahi, Nasrin**, and F. Mohajeri. "Using of metasurface lens and particle swarm optimisation for enhancement of parameters of a pyramidal horn antenna" in **Australian Journal of Electrical and Electronics Engineering**, 2022.
- > Hashemi, T., **Abdollahi, Nasrin**, and A. Alighanbari. "Refractive index sensor based on Fano resonance in metal-insulator-metal waveguides, coupled with a plate resonator from aside" in **30th International Conference on Electrical Engineering**, 2022.
- > **Abdollahi, Nasrin**, and F. Mohajeri. "Analysis and simulation of horn antenna in the presence of metamaterial surfaces as internal lens" in **Iranian Conference on Radar**, Isfahan, 2019.
- > Hosseini, S. Esmail, and **Abdollahi, Nasrin**. "Bias-free OSSB modulator with tunable OCSR" in **Optics Communications**, 2018.

TECHNICAL SKILLS

Electromagnetic & Photonics Tools	Lumerical, CST, HFSS, ADS Agilent
Programming & Analysis	MATLAB, Python, C, C++, FPGA
Engineering & Productivity Tools	LaTeX, Proteus, Multisim, P-Spice, Microsoft Office, Adobe Photoshop

LANGUES

Persian	
English	

STRENGTHS

- > Independent, Hardworking and Persistent
- > Motivated Researcher
- > Collaborative Team Member
- > Creative Idea Generator

REFERENCES

Dr. Abraham Vazquez-Guardado

Assistant Professor

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