Curriculum Vita

Name: **Omid Reza Ranjbar-Naeini**

Date of Birth **20, July 1987**

Research interests:

- Optical Fiber Sensors, Micro and Nano Fabrication, MEMS, MOEMS, Bio-MEMS, Integrated Photonics and Quantum photonics, Micro and Nano Electronics.

Education		
2022	Ph.D. in Photonics Dissertation: ***"Design and Manufacture of Biochemical and Mechanical sensors with Possible Biological Applications."*** Supervisor: Prof. Hamid Latif Thesis grade: 20 out of 20.0	Shahid Beheshti University, Tehran Iran
2013	M.Sc. in Photonics Dissertation ***"Micro Silica Sphere Cavity Sensor for Measurement of Pressure, Temperature, and Refractive Index. "*** Supervisor: Professor Hamid Latifi Thesis grade: 19.75 out of 20.0	Shahid Beheshti University, Tehran Iran
2011	Bachelor of Engineering in Optics and Laser Engineering, optoelectronics Dissertation: "**Design and fabrication of a Laboratory-Based CO_2 laser."** Supervisor: Dr. Shaghafi Thesis grade: 20 out of 20.0	Malek Ashtar University Isfahan Iran

Research Experience:

- Programming precise motorized stages for Optical fiber manipulation
- Optical System Design.
- Microfabrication and cleanroom procedures.
- Fabrication of 3D micro-scale optical fiber sensor by CO_2 laser.
- Design and Fabrication of a MEMS Tunable Fabry-Perot cavity.
- Femtosecond laser
- Microscopy: Confocal, SEM, and STM.
- Computer-assisted data acquisition, instruments control, and automation.
- Advance experience in Data Acquisition (DAQ) with LabVIEW, instrument control, automation and graphical user interface (GUI), and data analysis.
- 10+ years of professional experience in optoelectronic.
- 6+ years of experience as a team leader or project manager.
- 10+ years of experience in optical fiber manipulation and microfabrication in the field of optical fiber sensors, MEMS, and optoelectronics.

- 10+ years of experience in FEM simulation (optic, mechanics, etc.)
- 5+ years of experience in optical simulation with Zemax
- Expert in lasers, optical sensing, optical fiber interferometry, electro-optics, tunable laser spectroscopy

---

Selected Publications:

- **Ranjbar-Naeini OR**, Latifi H, Zibaii MI, Mousavian

"Measurement of milli-Newton axial force and temperature using a hybrid microsilica sphere Fabry–Perot sensor."

Optics letters. 2018 Nov 1;43(21):5210-3.

- Cheri MS, Latifi H, Aghbolagh FB**, Naeini OR**, Taghavi M, Ghaderi M.

"Fabrication, characterization, and simulation of a cantilever-based airflow sensor integrated with optical fiber."

Applied optics. 2013 May 10;52(14):3420-7.

- Chenari Z, Latifi H, **Ranjbar-Naeini OR**, Zibaii MI, Behroodi E, Asadollahi A.

" Tunable Fano-like lineshape in an adiabatic tapered fiber coupled to a hollow bottle microresonator."

Journal of Lightwave Technology. 2017 Nov 10;36(3):735-41.

- **Ranjbar-Naeini OR**, Jafari F, Zarafshani P, Zibaii MI, Latifi H.
  "Design and fabrication of micro silica sphere cavity force sensor based on hybrid Fabry Perot interferometer."
  InOptical Measurement Systems for Industrial Inspection X 2017 Jun 26 (Vol. 10329, pp. 770-775). SPIE.
- **Naeini OR**, Latifi H, Zibaii MI.
  "Simultaneous measurement of refractive index and temperature with micro silica sphere cavity hybrid Fabry Perot optical fiber sensor"
  In24th International Conference on Optical Fibre Sensors 2015 Sep 28 (Vol. 9634, pp. 944-947). SPIE.

- **Ranjbar OR**, Zibaii MI, Nouri S, Chenari Z, Mehrvar L, Ghezelaiagh MH, Latifi H.
  "***High pressure discrimination based on optical fiber microsphere cavity Fizeau interferometer***"
  InOFS2012 22nd International Conference on Optical Fiber Sensors 2012 Oct 17 (Vol. 8421, pp. 472-475). SPIE.
- Hamedi F, **Ranjbar-Naeini OR**, Layeghi A, Heidariazar A, Zibaii MI, Latifi H.
  "Self-referred microcavity-based fused-fiber fabry-perot refractometer."
  Optical Fiber Technology. 2022 Jan 1;68:102753.
- **Ranjbar-Naeini OR**, Jafari F, Latifi H.
  "Discrimination of Liquid Flow Rate with Polymeric Tapered Optical Fiber Sensor."
  InOptical Fiber Sensors 2018 Sep 24 (p. WF92). Optica Publishing Group.
- **Ranjbar-Naeini OR**, Barandak A, Tahmasebi MH, Pooladmast A, Latifi H.
  "Characterization the Effect of Pressure and Concentration of Acetone Gas on Micro Polymeric Curved Diaphragm Fabry Perot Optical Fiber Sensor."
  InOptical Fiber Sensors 2018 Sep 24 (p. WF10). Optica Publishing Group.
- Jafari F, **Ranjbar-Naeini OR**, Zibaii MI, Latifi H.
  "Profilometry of an optical microfiber based on modal evolution."
  Optics Letters. 2020 Dec 15;45(24):6607-10.
- **Ranjbar-Naeini OR**, Moghadam MS, Barandak A, Latifi H.
  "Design and fabrication of opto-mechanical micro polymeric cantilever based optical fiber sensor."
  InOptical Measurement Systems for Industrial Inspection XI 2019 Jun 21 (Vol. 11056, pp. 663-667). SPIE.
- **Ranjbar-Naeini OR**, Barandak A, Tahmasebi MM, Latifi H.

"***Characterization the effect of acetone gas concentration on polymeric tapered optical fiber sensor.***" InOptical Measurement Systems for Industrial Inspection XI 2019 Jun 21 (Vol. 11056, pp. 774-779). SPIE.

- **Ranjbar-Naeini OR**, Pooladmast A, Zibaii MI, Latifi H, Nasilowski T. ***"Characterization of Circular Core–Square Side Hole Optical Fiber based on Fiber Loop Mirror for Simultaneous Measurement of Temperature and axial Strain."*** InOptical Fiber Sensors 2018 Sep 24 (p. TuE65). Optica Publishing Group.

Moghaddam MS, **Ranjbar-Naeini OR**, Samimi A, Barandak A, Latifi H. ***"Tunable Fabry-Pérot Interfrometer Based On Electrowetting."***

Work Experience:

2016-Present	Senior Researcher • Optical Fiber Lab, Shahid Beheshti University. • Designed and oversaw the construction of the laboratory. • Wrote proposal. • Supervised ongoing projects. • Design and fabrication of Optical Fiber Sensors, MOEMS. • LabVIEW as an automation software for laser spectroscopy • Atmega for controlling, monitoring, and saving data from instruments • LabVIEW programming for motorized scanning control software, tunable DFB laser wavelength scanning • acoustic pressure measurement at 120-250kHz. • Microfluidic and optofluidic chip simulation and design for sensor applications such as flow rate measurement sensor, PH measurement sensor, refractive index measurement sensor, single-molecule measurement setup using WGMs) • Simulation with COMSOL, Lumerical, and fabrication of optical fiber sensors such as refractive index sensors based on taper down the optical fiber. Long Period Fiber Grating (LPG). Cantilever polymeric Fabry–Pérot (FP) interferometer, PDMS-based FP, and polymeric tapered OFS (PDMS based). • Instrumentation using Arduino and Nextion display (GPS, Bluetooth, micro SD card, ADC, control, Alarm) • Optical Design Using Zemax (optical design software) such as Multipass heriot cell, laser beam expander, laser diode collimator, beam shape converter (circular to elliptical with zoom property). • Advised, criticized, and encouraged MSC and BS students in our lab to develop abilities (13 people). • Taught small groups of students focused on specific parts of the coursework. (Advanced Laser Course, Photonics, Optics, Optical Fiber Sensors)	Shahid Beheshti University
2012-2016	• Laboratory research assistant. • Design and fabrication of Optical fiber sensor. • Design and fabrication of 3D micro-Structures and microfluidics. • Fabrication of integrated photonics device (Waveguides, Tapered, WGM, Faby Perot, …)	Shahid Beheshti University, Tehran, Iran

Computer Skills:

Programming Languages	**LabVIEW:** Programming, Image Processing, and Device Control (proficient) **MATLAB** (proficient)

	Microcontrollers (expert)
	C# (expert)
Simulation Software	**COMSOL Multiphysics**: Mechanical, Electrostatic, RF, MEMS, Flow modules(proficient)
	Lumerical: FDTD Solutions, Mode Solutions (proficient)
	Optiwave: OptiBPM(proficient)
	Optical Design using **Zemax** (proficient)
	Proteus(expert)
	Origin (proficient)
Design and Graphics	**SolidWorks**: CAD Design (expert)
	Auto Cad (expert)
	L-edit (expert)
	Photoshop (expert)
	EAGLE (expert)

Technical Skills:

- Optical Fiber Sensor and MEMS Sensors design
- Replication of Micro Scale Patterns
- Optical Lithography Technique (Substrate preparation, Pattern generating, Baking, Developing, etc.)
- Optical Fiber Sensor design
- Strong analog and digital laboratory bench skills. Ability to debug and characterize analog and digital devices using oscilloscopes.

Honors:

- Selected as a Top Ph.D. student in photonics Laser and Plasma Research Institute, Shahid Beheshti University, Tehran, Iran, 2019
- Student Grant, Optical Nanofiber Applications workshop Japan, 2019
- Student Grant, International School on Light Sciences and Technologies, Spain, 2019
- Student Grant, International School on Light Sciences and Technologies, Spain, 2018
- Student Grant, International School on Light Sciences and Technologies, Spain, 2017
- Winner of innovation and prosperity project, Fajr Festival Award, Tehran, Iran, 2010
- Ranked 1st, Among B.Sc students Iran, 2009