# Mike Honarvar, Ph.D.

Mechanical & Material Engineer | Senior Mechanical R&D Engineer – Medical Devices

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## Professional Summary

Innovative and hands-on R&D Engineer with over 10 years of experience designing, prototyping, and commercializing non-invasive medical devices and sensor systems. Proven expertise in mechanical design, FEM simulation, and cross-functional collaboration from concept to clinical validation. SolidWorks-certified designer skilled in translating user and clinical needs into manufacturable, ISO 13485–compliant solutions under FDA design control standards.

## Core Competencies

• Medical Device R&D • Mechanical Design & Prototyping • SolidWorks (Certified) • COMSOL FEM Simulation  
• Product Development Lifecycle • Finite Element Analysis (FEA) • ISO 13485 / 21 CFR 820.30 Compliance  
• Cross-Functional Collaboration • Opto-Mechanical Systems • Failure Analysis • 3D Printing & CNC Fabrication

## Professional Experience

* \*\*Sr. Mechanical R&D Engineer II\*\* – Masimo, Irvine, CA (Apr 2020 – Jan 2025)

• Led design, prototyping, and fabrication of a photo-acoustic non-invasive glucose detection system through pre-clinical and clinical study phases.  
• Directed mechanical design and packaging of a novel non-invasive malaria sensor, coordinating fabrication with internal teams and external vendors.  
• Applied COMSOL and OnScale simulation tools to optimize device performance and reliability.  
• Collaborated across engineering and process teams to enhance Masimo’s commercial products, including pulse oximetry sensors.  
• Managed fabrication workflows (CNC machining, 3D printing, injection molding) and vendor relationships.  
• Mentored junior engineers and ensured compliance with ISO 13485 and FDA 21 CFR 820.30 standards.  
• Authored technical reports, documentation, and design presentations for R&D and regulatory review.

* \*\*Staff Scientist\*\* – Intelligent Optical Systems, Inc., Los Angeles, CA (May 2018 – May 2020)

• Developed laser ultrasound (LUT) techniques for NDT applications, including additive manufacturing inspection and nuclear containment analysis.  
• Designed and prototyped an advanced breast biopsy needle integrating optical sensors and nitinol actuators (NIH proposal).  
• Conducted bench-top opto-mechanical testing, data analysis (MATLAB, Excel), and system validation.  
• Prepared research proposals, technical documentation, and presentations for funding agencies.

* \*\*Opto-Mechanical Engineer\*\* – Intelligent Fiber Optic Systems (IFOS), Santa Clara, CA (Feb 2015 – Dec 2017)

• Integrated fiber Bragg grating (FBG) sensors into surgical biopsy tools for prostate cancer detection and analysis.  
• Designed and fabricated opto-mechanical test systems for evaluating actuator performance and tissue sensing.  
• Authored SBIR/STTR proposals for government-funded fiber-optic sensor applications.

* \*\*Assistant / Adjunct Faculty & Researcher\*\* – Temple University, Philadelphia, PA (Sep 2010 – Dec 2014)

• Conducted thermomechanical characterization of Nitinol actuators for smart surgical biopsy needles.  
• Designed and built bench-top experimental setups and performed XRD, DSC, SEM, and tensile testing.  
• Taught undergraduate engineering courses and laboratory sections (Statics, Vibrations, Fluid Dynamics).

## Education

\*\*Ph.D., Mechanical Engineering\*\* – Temple University, Philadelphia, PA (2010–2014)

\*\*M.Sc., Material/Corrosion Engineering\*\* – Shiraz University, Shiraz, Iran (2005–2008)

\*\*B.Sc., Material Engineering\*\* – Shiraz University, Shiraz, Iran (2000–2005)

## Technical Skills

SolidWorks (Certified) • COMSOL Multiphysics • OnScale • MATLAB • FEA Analysis • Optical & Mechanical Prototyping  
3D Printing • CNC Machining • Injection Molding • ISO 13485 & FDA 21 CFR 820.30 Compliance • Bench-Top Testing  
Laser Ultrasound Systems • Fiber Optic Sensors • Data Analysis & Reporting

## Publications

Author of peer-reviewed publications in biomedical sensing and laser ultrasound technologies.  
Full list: https://scholar.google.com/citations?user=\_BOzNpoAAAAJ&hl=en