

Idan Steinberg, Ph.D.

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EXECUTIVE SUMMARY

Vice President of Research & Development and Biomedical Engineering Ph.D. with 25+ years of experience leading multidisciplinary teams to develop and clinically validate medical diagnostic devices. Progressed from deep technical expertise in biomedical imaging, algorithms, and instrumentation to executive R&D leadership. Advanced technologies from early-stage research through TRL 5 development, including multi-site clinical trials and system-level architecture redesigns that reduced manufacturing costs by 33% and device footprint by 5×.

TECHNICAL & LEADERSHIP EXPERTISE

- **Leadership** - R&D organization leadership, multidisciplinary product development, technical strategy, team development
- **Imaging & Biomedical Systems** - Acoustic and photoacoustic imaging, biomedical sensors, signal processing, medical imaging, clinical validation
- **Software & Modeling** - Python, MATLAB, C++, CUDA, k-Wave, Field II, COMSOL, ZEMAX
- **Hardware & Instrumentation** - RF and acoustic systems, optical and fiber-optic systems, prototype development, testing and calibration, DAQ

EXPERIENCE

Senior Director of Research and Development / Vice President for Research and Development

Endra Life Sciences Inc.

December 2024 - Present, Ann Arbor, MI

- Promoted to VP R&D following successful execution of the company's clinical strategy; restructured the R&D organization and redirected development priorities, contributing to \$5M in subsequent fundraising.
- Led an 8-month engineering effort to identify and resolve the causes of clinical performance failure in the company's thermoacoustic diagnostic device, taking the system from TRL 0 to TRL 5. Used k-Wave, Ansys HFSS, and internally developed tools to model the acoustic system and identify signal aliasing caused by rib interference, with interference signals hundreds of times larger than the clinical targets.
- Redesigned the hardware by optimizing RF antenna spacing relative to the acoustic sensor, resolving the interference without requiring a full system redesign.
- Improved device clinical efficacy, measured by correlation with MRI-PDFF, from 4% to 89%. Directed multi-site clinical trials involving 70+ patients and supported peer-reviewed publications.
- Led an interdisciplinary team to design a third-generation combined device (ultrasound and thermoacoustic) to address usability issues. The design reduced projected manufacturing costs by 33%, the probe footprint by half, and the overall system footprint by 5×.

Applied Science Team Leader

Endra Life Sciences Inc.

September 2021 - November 2024, Ann Arbor, MI

- Assumed technical ownership for the first- and second-generation device pipeline and independently analyzed clinical data that identified major discrepancies in baseline efficacy, including a 4% correlation with gold-standard measurements.
- Presented the clinical and technical findings directly to the Board, resulting in a 50% reduction in operating costs and a change in the company's technical direction.
- Led the redesign of the acoustic sensor, increasing baseline sensitivity by 6 dB and reducing array-wide sensitivity variation 3-fold.
- Managed system specifications, QA procedures, and clinical deployment training, while coordinating technical work between company leadership and external engineering contractors.
- Major contributor to clinical trial design and execution, medical-device validation, ISO 13485, and design verification and validation

Principal Researcher

Vortex Medical Imaging

November 2020 – September 2021, Sunnyvale, CA

- Joined as the first U.S. hire of an early-stage computational ultrasound startup and served as the primary ultrasound imaging expert. Established the company's US acoustic laboratory, including equipment procurement, custom 3D-printed components, and core testing infrastructure.
- Defined the technical specifications and characterization methods for a 3D ultrasound probe based on Full Matrix Capture and real-time full waveform inversion for imaging tissue density and speed of sound.
- Worked with external vendors to transition the probe from design to physical prototype, including defining QA requirements and performance targets for the software and computer science team.

Team Leader & Postdoctoral Fellow

Stanford Univ. School of Medicine, Radiology Dept.

June 2016 - May 2021, Palo Alto, CA

- Managed a \$1M development budget and a multidisciplinary team of 10–20 engineers, computer scientists, biologists, and clinical researchers. Led development of optical and acoustic technologies from laboratory prototypes toward clinical applications.
- Led development of a combined photoacoustic and ultrasound prostate imaging system from initial design through prototype development and clinical testing. Authored initial designs and managed external subcontractors responsible for custom ultrasound arrays, multi-port optical waveguides, and specialized cart housings.
- Implemented real-time signal-processing algorithms and software workflows using MATLAB, Python, and CUDA, increasing photoacoustic imaging data-processing speed by 10×.
- Designed and executed a validation program covering preclinical testing, ex vivo studies, and a first-in-human feasibility clinical trial for early cancer detection. The project was selected as one of five Stanford projects to receive funding from Philips Healthcare based on its potential for clinical and commercial translation.

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EARLY CAREER

Graduate Researcher - Ph.D. in BME

Tel Aviv University, School of Engineering

January 2011 - March 2016, Tel Aviv, Israel

- Developed novel photoacoustic methods and prototype devices for early detection of osteoporosis, advancing technologies from bench-top concepts to first-in-human clinical studies.
- Designed experimental systems and studies spanning acoustic instrumentation, biophotonics, statistical optics, and laser-tissue interactions.
- Taught graduate courses in biomedical optics and medical imaging while mentoring students and supporting multidisciplinary research projects.

Algorithms Engineer

OptiCul Diagnostics Ltd.

May 2010 - January 2011, Tel Aviv, Israel

- Established advanced signal-processing methods and an SVM classifier for a rapid optical bacteria-detection device, evaluating performance against clinical-trial data.
- Performed and analyzed clinical trials, using the results to support the company's transition toward commercialization and early business planning.

Graduate Researcher - M.Sc., Biomedical Engineering & Management Track

Tel Aviv University, School of Engineering

September 2008- May 2010, Tel Aviv, Israel

- Developed a novel magneto-motive ultrasound method for early detection of cancer, from concept through modeling and benchtop prototype.

Algorithms & Image Processing Engineer

Weizmann Institute of Science

July 2007 - September 2008, Rehovot, Israel

- Designed and implemented a real-time multi-threaded video and sensor analysis system capable of capturing and processing rapidly changing, unpredictable whisker movement to control a live feedback loop.

Operations Research Officer

Israel Defense Forces

August 2000 - October 2004, Israel

- Applied quantitative analysis and operational modeling to support planning and decision-making. Selected for the Lotem academic and technical military program.

EDUCATION

- **Accelerated Management Development Certificate Program**

Univ. of Michigan, Ross School of Business • Ann Arbor, MI • 2023

- **Ph.D., Biomedical Engineering**

Tel Aviv Univ., EE & BME departments. • Tel Aviv, Israel • 2011 - 2016

- **M.Sc., Biomedical Engineering & Management Track**

Minor in Business Administration • Tel Aviv Univ., BME department. • Tel Aviv, Israel • 2008 - 2010

- **B.Sc., Biomedical Engineering**

Tel Aviv Univ., BME department. • Tel Aviv, Israel • 2004 - 2008

LEADERSHIP & SERVICE

- **International Society for Optics and Photonics** - Tel Aviv University chapter founder and first president.
- **President's Peres Program (Odyssey), Tel Aviv University** - Mentor supporting student innovation and scientific development.

SELECTED PUBLICATIONS

Over 50 peer-reviewed publications and more than 2,000 citations (full list: scholar.google.com/citations?user=sosl-VsAAAAJ)

- ***Superiorized Photo-Acoustic Non-Negative Reconstruction (SPANNER) for Clinical Photoacoustic Imaging***
IEEE Transactions on Medical Imaging • 2021
- ***Photoacoustic clinical imaging***
Photoacoustics • 2019
- ***First-in-human study of bone pathologies using a low-cost and compact dual-wavelength photoacoustic system***
IEEE Journal of Selected Topics in Quantum Electronics • 2018

AWARDS & HONORS

- **SPARK Program Fellow** - Selected as one of 14 Stanford teams for industry translation of a photoacoustic marker for imaging bacterial infections.
- **Philips Healthcare Fellow** - Stanford University Department of Radiology, for development of a dual ultrasound/photoacoustic imaging system.
- **Sir Peter Michael Foundation Fellow** - Selected as a national researcher for excellence in clinical translation of prostate cancer photoacoustic imaging at Stanford University.
- **Sir Charles Clore Scholar** - Selected as one of nine scholars nationwide.