

Mehdi Hatamian

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949-294-6500

EDUCATION:

B.S., 1977, Electrical Engineering, Sharif (Arya-Mehr) University of Technology, Tehran, Iran

M.S., 1978, Electrical Engineering, University of Michigan, Ann Arbor

Ph.D., 1982, Electrical Engineering, University of Michigan, Ann Arbor

EMPLOYMENT:

Aug. 2016 – Present, *2Pi-Sigma Corporation*, Founder, CEO & CTO. Next generation cancer screening devices and technologies.

Mar. 2020 – Present, *Florida International University*, Distinguished Professor of Electrical Engineering.

Feb. 2016 – Aug. 2016, *Broadcom Ltd.*, Fellow and Chief Scientist, Central Engineering.

1996 - 2016, *Broadcom Corporation*, Office of the CTO – Senior VP Engineering (2013-2016), VP Engineering (2003-2013), Senior Technical Director (2000 - 2003), Technical Director (1996-2000). Design and development of Broadcom's first complete standard cell library using custom circuit approach. Design of Decision Feedback Equalizers for Fast Ethernet transceiver chips. Design of DSP processors for Gigabit Ethernet transceivers. Tools for full-custom designs. Leading an R&D team for advance technology development in the areas of high-performance processor core implementation, high-speed memories, DSP cores for wireless applications, LDPC core designs, process node evaluation, custom library cells, low-power design techniques, advanced CAD tools, Sign-Off methodologies, and 3D packaging.

1991 - 1996, *Silicon Design Experts, Inc. VP Technology and Co-Founder, Inc.* Design and development of real-time MPEG video encoder/decoder chips, multi-core commercial DSP processor chips, and ATM transceiver chips. Development of design tools for large-scale integrated circuits. Design and development of custom library circuits for VLSI synthesis.

1982 - 1991, *Bell Laboratories*, Member of Technical Staff (82-87) and Distinguished Member of Technical Staff (87-91). Research in the fields of signal and image processing, fast algorithms, high-speed integrated circuits, voice/data/video networks, character recognition, high-temperature superconducting, HDTV circuits, video coding, clock distribution networks, and full-custom VLSI design. 1987-1988, Lecturer (graduate course on VLSI design), Electrical Engineering Dept., Princeton University.

1979 - 1982, *University of Michigan's NASA project in life sciences*, Design Engineer. Hardware and software development for a Space Shuttle project flown on the 4th Space Shuttle mission.

PROFESSIONAL ASSOCIATION/SOCIETY MEMBERSHIP:

- Member, National Academy of Engineering
- Life Fellow member of IEEE
- IEEE International Solid States Circuits Conference. Committee member, 1993-1998
- IEEE 802.11 Standards Committee, 1996-1999

AWARDS AND HONORS:

- Member, National Academy of Engineering, class of 2016. For contributions to development of integrated circuits for video, communications, and digital signal processing.
- IEEE Life Fellow, 2003. For contributions to the design of high-performance digital signal processors.
- Broadcom #1 Patent Holder Award, 2005
- Broadcom #1 Patent Holder Award 2006
- University of Michigan's ECE Alumni Merit Award, 2008.
- University of Michigan's ECE Alumni Impact Award, 2024.
- Broadcom Fellow, 2011. For contributions to high performance digital signal processors, logic and memory design
- Honorary Ph.D., Dubna International University, Russia.
- Rackham Graduate School Fellowship, University of Michigan, 1978
- Sharif University of Technology Scholarship, 1977.

PATENTS AND PUBLICATIONS:

- **223** issued patents and **21** patents pending.
- **40** archival publications, **27** Bell Laboratories Technical Memorandum publications, **2** book chapters.

ADVISORY POSITIONS:

- 2025 – Present, Senior Fellow and Advisor, IC Photonics
- 2020 – Present, Advisor to Parthian Energy
- 2021 – Present, Executive Advisor to Peltbeam Inc.
- 2018 – Present, Chief Scientific Advisor, Vivera Pharmaceuticals Inc.

BOARD POSITIONS:

- 2016 – Present, Chairman of the Board, 2Pi-Sigma Corp.
- 2017 - 2019, Board of Directors, Sensei Biotherapeutics
- 2018 - Present, Chief Scientific Advisor, Vivera Pharmaceuticals
- 2001 - 2017, Board of Directors, Panacea Pharmaceuticals, Inc.
- 2008 - 2014, Board of Directors, Pharmaco-Kinesis Corp.
- 2006 - 2012 Engineering Advisory Council of the University of Michigan

EXPERTISE and INTERESTS:

CMOS integrated circuit and SoC (System on a Chip) design, signal processing, biomedical devices, digital communication, full custom circuits, video and image processing, CAD tools, semiconductor process nodes, application of biomedical electronics, cancer screening technologies, sensors and microfluidic systems for detection and quantification of proteins, rapid test platforms, drug delivery devices, water desalination technologies, .

SELECTED HIGHLIGHTS OF MEHDI HATAMIAN'S ACCOMPLISHMENTS:

- Work History: NASA, U of M, Bell Labs, Princeton University, SDE Inc., Broadcom, FIU, 2Pi-Sigma Corp.
- 49 years of professional experience and expertise in: circuit design, signal processing, communication, integrated circuits and semiconductors, high speed processors, SoC chips, biomedical electronics, drug delivery systems, microfluidics, sensors, image processing, high temperature superconductors, system design, and micro controllers
- Member of National Academy of Engineering
- Life Fellow of IEEE
- Fellow of Broadcom
- 246 Issued patents, 69 publications. More than 90% of these patents have been used in products worldwide and cover the following subject areas: Electronic circuits and systems, integrated semiconductor circuits and SoC chips, signal processing algorithms and systems, digital communication systems, adaptive circuits, Image processing algorithms and systems, Gigabit Ethernet transceivers, high speed pipelined processing systems, Fast Ethernet transceivers, modular water desalination systems, 5G wireless communication systems, integrated circuit library cells and layout techniques, IoT devices, wine storage devices, magnetic hook systems, drug and vaccine delivery medical devices, IV injection devices, dose-controlled drug delivery devices to prevent opioid abuse, microfluidic chips and devices, lateral flow assay technologies, exosome-based biomarker detection assays.
- Sharif University of Technology's highest scholarship
- U of M graduate school full fellowship
- Broadcom #1 Patent Holder Award, 2005 and 2006.
- University of Michigan's ECE Alumni Merit Award, 2008.
- University of Michigan's ECE Alumni Impact Award, 2024.
- Honorary Ph.D., Dubna International University, Russia
- U of M's first VLSI chip
- World's first cable modem. World's first demonstration and proof of feasibility of a complete CATV network simultaneously carrying data/voice/video at Bell Laboratories. World's first cable modem.
- World's first HDTV chip set
- World's first real-time video communication chip

- World's first 100 Base-Tx (Fast Ethernet) Decision Feedback Equalizer
- World's first Gigabit Ethernet transceiver DSP
- Pioneering work on very high-speed pipelined signal processing and computing circuits and algorithms
- Early work on theoretical formulation of clock skew in synchronous systems
- Designer and creator of Broadcom's circuit cell library
- CAD tools for full-custom integrated circuit design
- Cancer detection technologies and test devices
- Medical device inventions, design, and development:
 - Intradermal drug delivery devices
 - IV delivery systems
 - Dose controlled drug delivery devices
 - RFID-based sample collection, blood transfusion, and patient ID components and systems
 - Next Generation Lateral Flow Assay platform technology
 - Exosome-based detection assays
 - Software programmable microfluidics

As of 2026, the work in these areas had been shipped in an estimated 28 billion integrated circuits and SoC chips used in electronic products covering all aspects of data/voice/video communication and internet traffic around the world. I also have a deep interest in cancer diagnostics, imaging and treatment and have been involved in a research since 2001 on universal cancer treatment and integrated cancer management. The development of a low cost, universal cancer screening technology is currently my major focus and extreme passion.

OTHER SKILLS AND INTERESTS:

- Practical knowledge of advanced cancer diagnostics, imaging, and treatment procedures
- Biosensors for cancer diagnostics
- Drug delivery devices
- 48 years of experience in photography
- Large scale radio-controlled helicopters
- Autopilot systems for radio-controlled jets and airplanes
- Electronic tracking for sports applications
- Hardware and software for automation and control
- Modular water desalination technologies
- Ocean wave electrical generators
- Floating solar energy generation