



Photo Courtesy of National Inventors Hall of Fame

James Fujimoto

Optical Coherence Tomography (OCT)

U.S. PATENT NO. 5,321,501: Method and apparatus for optical imaging with means for controlling the longitudinal range of the sample

U.S. PATENT NO. 5,459,570: Method and apparatus for performing optical measurements

Inducted in 2025 Born: Sept. 28, 1957

James Fujimoto, David Huang and Eric Swanson invented optical coherence tomography (OCT), a method for imaging subsurface structure of biological tissue in unprecedented detail. OCT has had a transformative impact in ophthalmology, improving the detection and management of sight-impairing eye diseases. OCT also is used in cardiology and across a growing range of applications in the medical field and beyond.



Full Bio: <https://www.invent.org/inductees/james-fujimoto>

Primary Connections:

- Massachusetts Institute of Technology: Elihu Thomson Professor of Electrical Engineering, 2011-present; Professor of Electrical Engineering and Computer Science, 1985-2011
- Medical University of Vienna: Adjunct Professor, 2016-present
- LightLab Imaging (acquired by St. Jude Medical in 2010 and Abbott Laboratories in 2016): Co-founder, 1998-2002
- Advanced Ophthalmic Devices (acquired by Zeiss): Co-founder, 1992-94

Education:

- Massachusetts Institute of Technology: B.S., Electrical Engineering and Computer Science, 1979; Ph.D., Electrical Engineering and Computer Science, 1984

Key Memberships/Awards:

- Honda Prize, 2024
- Lasker-DeBaakey Clinical Medical Research Award, 2023
- National Medal of Technology and Innovation, 2022
- IEEE Medal for Innovations in Healthcare Technology, 2022
- National Academy of Engineering: Russ Prize, 2017
- Ives Medal of the Optical Society of America, 2015
- António Champalimaud Vision Award, 2012

Things You Should Know:

- Fujimoto was born in 1957 in Chicago and attended Lane Technical High School.
- His parents strongly encouraged him to pursue a college education – an opportunity that was not available to them.
- Fujimoto’s father had a small electrical contracting business and often took his son to work with him on weekends and during summers. This technical and small business training, along with real-life experience, profoundly shaped Fujimoto’s professional future.
- He is co-founder of LightLab Imaging (acquired by St. Jude Medical) and Advanced Ophthalmic Devices (acquired by Zeiss).
- Fujimoto was co-recipient of the 2017 National Academy of Engineering Russ Prize, the 2022 National Medal of Technology and Innovation, and the 2023 Lasker-DeBaakey Clinical Medical Research Award with Huang and Swanson. He was also co-recipient of the António Champalimaud Vision Award in 2012 with Huang, Swanson, Joel Schuman and Carmen Puliafito.
- Fujimoto has honorary doctorates from the Friedrich-Alexander-Universität Erlangen-Nuremberg, Germany, and Nicolaus Copernicus University, Torun, Poland.
- He is a member of the National Academy of Sciences, National Academy of Engineering, and American Academy of Arts and Sciences.
- Fujimoto has 27 U.S. patents and more than 550 scientific and medical journal publications.