

ERIC R. FOSSUM

Biography

Eric R. Fossum is best known for the invention of the CMOS image sensor “camera-on-a-chip” used in billions of cameras, from smart phones to web cameras to pill cameras and many other applications. He is a solid-state image sensor device physicist and engineer, and his career has included academic and government research, and entrepreneurial leadership. He is the John H. Krehbiel Sr. Professor for Emerging Technologies at the Thayer School of Engineering at Dartmouth in Hanover, New Hampshire, where he teaches, performs research on image sensors, and directs the School’s Ph.D. Innovation Program. He also serves as Dartmouth’s Vice Provost for Entrepreneurship and Technology Transfer.



NMTI presented by White House Office of Science, Technology and Policy Director Dr. Arti Prabhakar 2025

Born and raised in Connecticut, he attended public school in Simsbury and spent Saturdays at the Talcott Mountain Science Center in Avon. He received his B.S. in Physics and Engineering from Trinity College in Hartford and the Ph.D. in Engineering and Applied Science from Yale University in New Haven. He was a member of Columbia University’s Electrical Engineering faculty and then joined the NASA Jet Propulsion Laboratory, California Institute of Technology where he managed JPL’s image sensor and focal-plane technology research and advanced development. While at JPL, he invented the intra-pixel charge transfer CMOS active-pixel-sensor camera-on-a-chip technology and led its development and subsequent transfer of the technology to US industry. Nearly all the six (6) billion CMOS cameras made each year use the intra-pixel charge transfer invention. Dr. Fossum co-founded Photobit Corporation to commercialize the technology and served in several top management roles including Chairman and CEO. Photobit was acquired by Micron Technology Inc. He was Chairman and CEO of Siimpel Corporation developing MEMS-based camera modules with autofocus and shutter functions for cell phones. He was a consultant with Samsung Electronics working on 3D image sensors and strategic issues for several years before joining Dartmouth. He co-founded Gigajot Technology Inc. with his former Dartmouth PhD students to commercialize the photon-counting Quanta Image Sensor (QIS) technology and served as Chairman.



QE Prize awarded by (then) Prince Charles at Buckingham Palace 2017

Dr. Fossum received the Queen Elizabeth Prize from HRH Prince Charles, considered by many as the Nobel Prize of Engineering “for the creation of digital imaging sensors,” along with three others. He received the U.S. National Medal of Technology and Innovation in a White House ceremony “for inventing world-changing “camera-on-chip” technology that has turned billions of phones into cameras and transformed everyday life...and then worked to use it in medicine, business, security, entertainment, and more.” He was inducted into the National Inventors Hall of Fame (NIHF), elected to the National Academy of Engineering (NAE) and selected as a Charter Fellow of the National Academy of Inventors (NAI). Other honors include the National Academy of Television Arts and Sciences Technical Emmy® Award, NASA Exceptional

Achievement Medal, the IEEE Andrew Grove Award and Medal, the OSA and IS&T Edwin H. Land Medal, the Distinguished Eagle Scout Award and Medal, the Royal Photographic Society's Progress Medal, the American Photographic Society's Progress Medal, the SMPTE Camera Origination and Imaging Medal, induction in the Space Technology Hall of Fame and the NSF Presidential Young Investigator Award. He was awarded Yale's Wilbur Cross Medal and the inaugural Trinity College President's Medal for Science and Innovation. An early Photobit sensor and camera were on display at the Smithsonian National Museum of American History's Inventing in America exhibit and at the National Inventors Hall of Fame Museum at USPTO, and Photobit's PB-100 "camera-on-a-chip" is in the IEEE Spectrum Chip Hall of Fame.

Dr. Fossum has published over 340 technical papers and holds 185 US patents. He co-founded the International Image Sensor Society (IISS), was its first President and Chaired the IISS Board of Directors. He is a Life Fellow member of the Institute of Electrical and Electronic Engineers (IEEE), a Fellow member of Optica, formerly the Optical Society of America (OSA), and a member of the Society of Motion Picture and Television Engineers (SMPTE) and the American Association for the Advancement of Science (AAAS).



NATAS Technical Emmy Award 2021

He volunteers for the IISS Governance Advisory Committee, the NIH Selection Committee and Selection Board, and the NAE Committee on Membership. He has served on the Board of Trustees of Trinity College, the Board of Directors of the National Academy of Inventors, and the Board of Trustees for the Talcott Mountain Science Center, as an AAAS-Lemelson Invention Ambassador, on the Leadership Council of the Yale University School of Engineering and Applied Science, the Peer Selection Committee for the NAE, the Fellow Selection Committee of the NAI, He also actively supports Camp Invention and the Collegiate Inventors Competition, two programs operated by NIH. For relaxation, he and his wife operate a hobby farm in New Hampshire.

Expertise:

- Image sensor R&D (CCD, CMOS, QIS). Primary inventor of CMOS image sensor technology used in billions of smartphones and cameras, and inventor of Quanta Image Sensors.
- University education - teaching at undergraduate and graduate levels and student development. Management of entrepreneurial and technology transfer programs.
- Executive management of high-tech startup companies from inception to acquisition. CEO of two 125+ person start-up companies. Co-founded a third and served as Chairman.
- Government funded R&D leadership and management. NASA/JPL and SBIR program management.
- Intellectual property expert consultation for strategic value and infringement. Inventor on 180 US patents. Expert witness.

Education:

1984	Ph.D. Engineering and Applied Science (EE)	Yale University , New Haven, CT
1980	M.S. Engineering and Applied Science (AP)	Yale University , New Haven, CT
1979	B.S. Physics and Engineering	Trinity College , Hartford, CT

Primary Employment:

- 2017- **Vice Provost for Entrepreneurship and Technology Transfer**
Dartmouth College, Hanover, New Hampshire, additional duty 1/2 time
(2017-2021 Assoc. Provost)
- 2010- **Professor of Engineering and Director of Dartmouth PhD Innovation Program**
Thayer School of Engineering, Dartmouth College, Hanover, New Hampshire
John H. Krehbiel Sr. Professor for Emerging Technologies (named chair 2018)
- 2008-2010 **Consultant**
Various organizations, see below.
- 2005-2007 **Chief Executive Officer and Chairman of the Board**
Siimpel Corporation, Arcadia & Pasadena, California
- 2003-2005 **Consultant**
Various organizations, see below.
- 2002-2003 **Micron Fellow (Senior Fellow '03)**
Micron Imaging, Micron Technology Inc., Pasadena, California
- 2001 **Co-Founder, Chief Executive Officer and Chairman of the Board**
Photobit Technology Corporation, Pasadena, California (Jan '01-acquisition)
and Photobit Corporation (June '01-acquisition)
- 1996-2000 **Co-Founder, Chief Scientist and Chairman of the Board**
Photobit Corporation, Pasadena, California (CTO '00)
- 1990-1996 **Technical Assistant Section Manager (and Sr. Research Scientist '94-'96)**
for Image Sensor and Focal Plane Technology
Observational Systems Division
Jet Propulsion Laboratory, California Institute of Technology
- 1989-1990 **Associate Professor**, Department of Electrical Engineering,
Columbia University, New York, New York
- 1984-1989 **Assistant Professor**, Department of Electrical Engineering,
Columbia University, New York, New York
- 1983 **Acting Instructor**
Yale University, New Haven, Connecticut
- 1981-1983 **Member of the Technical Staff**
Hughes Aircraft Company Missile Systems Group, Canoga Park, California (Summers)
- 1979-1984 **Graduate Research Assistant**
Yale University, Department of Engineering, New Haven, Connecticut
- 1978-1979 **Systems Analyst/Programmer**
American Management Systems, Rosslyn, Virginia (Summers/Winter Break)
- 1977-1979 **Systems Analyst/Programmer**
Trinity College, Admissions & Financial Aid Department, Hartford, Connecticut
(Part-time)
- 1973-1977 **Systems Analyst/Programmer**
Calpurnia Associates, Avon, Connecticut (Part time, high school and college)

Other Concurrent Appointments:

- 2024- **Member, Board of Advisors**
Trinity College Center for Innovation and Entrepreneurship
- 2022-2025 **Member, Committee on Membership**
National Academy of Engineering

- 2019- **Member, Visiting Committee**
NASA Jet Propulsion Laboratory – MicroDevices Laboratory (MDL)
- 2019-2024 **Board of Trustees**
Talcott Mountain Science Center and Academy, Avon, Connecticut
- 2017- **Co-Founder, Chairman of the Board**
Gigajot Technology, Inc.
- 2016- **Board of Directors**
National Inventors Hall of Fame Selection Board, Inc.
- 2015-2019 **Leadership Council**
Yale School of Engineering and Applied Science, New Haven, Connecticut
- 2014-2022 **Board of Trustees**
Trinity College, Hartford, Connecticut
- 2014-2018 **Board of Directors**
National Academy of Inventors
- 2010-2021 **Founder and Chief Executive Officer**
Fovius Corporation (Consulting on technical and IP matters)
- 2007- **Co-Founder and First President**
International Image Sensor Society (non-profit)
Co-founder ('07), President ('07-'13), Treasurer ('07-'17), Director ('07-'21),
Chairman of the Board ('07-'21). Governance Advisory Board ('21-)
- 2006- **Founding Member**
Active Pixel Associates LLC (advisory group)
- 2005-2008 **Board of Advisors**
Canesta Corporation, San Jose, CA
- 2001- **General Partner**
Winnibit LP (real estate and other investment)
- 2001-2007 **Adjunct (Full) Professor**
University of Southern California, Department of Electrical Engineering
Los Angeles, California
- 1995-2001 **Board of Directors**
Photobit Corporation (and 2001, Photobit Technology Corporation)
- 1996-1999 **Adjunct (Full) Professor**
University of California, Los Angeles, Department of Electrical Engineering
Los Angeles, California
- 1990-1994 **Adjunct (Associate) Professor**
Columbia University, Department of Electrical Engineering, New York, New York
- 1989-1990 **Distinguished Visiting Scientist**
Jet Propulsion Laboratory, Caltech, Pasadena, California
- 1985- **Consultant (technical and intellectual property)**
IBM Research (85-90), Kulite Semiconductor (87-88), JPL (88-90), Lockheed (89), GE
(89), Honeywell (90), NATO/AGARD-NDRE (91), Synaptics (91), Photobit (95-96),
Jones Day (04), McDermott, Will & Emery (07), Canesta(04-07), SiWave (04), Forza
Silicon (07), Samsung Electronics (08-12), Weil, Gotshal & Manges (09-10), Wilson-
Cook Medical (09), Rambus (10-15), RIM (11-12), Zeiss (11-12), Fitzpatrick, Cella,
Harper, Scinto (12-14), O'Melveny and Myers (14), Mintz, Levin, Cohn, Ferris,
Glovsky and Popeo (15), Alacrity Semiconductor (15-18), Fish and Richardson (16),
Shore, Chan, Depumpo (17-19), Ropes and Gray (19-20), Quinn Emanuel Urquhart
and Sullivan (23-24)

Honors:

- 2025 President of the United States National Medal of Technology and Innovation ([link](#))
- 2024 Trinity College (inaugural) President's Medal for Science and Innovation ([link](#))
- 2022 Society for IS&T Electronic Imaging Scientist of the the Year ([link](#))
- 2021 National Academy of Television Arts and Sciences Emmy® Award ([link](#))
- 2020 Optical Society of America (OSA) jointly with Society for Imaging Science and Technology (IS&T) Edwin H. Land Medal ([link](#))
- 2018 IEEE Spectrum Chip Hall of Fame for Photobit PB-100 camera on a chip ([link](#))
- 2018 Yale Science and Engineering Association Award for Advancement of Basic and Applied Science ([link](#))
- 2018-2022 Photobit Sensor and Camera on Exhibit at NIHF Museum at USPTO
- 2017 Queen Elizabeth Prize for Engineering ([link](#))
- 2017 Boy Scouts of America Distinguished Eagle Scout Award ([link](#))
- 2017 Trinity College Alumni Medal for Excellence ([link](#))
- 2016 AAAS-Lemelson Invention Ambassador ([link](#))
- 2016 Fellow of the Optical Society of America (OSA)
- 2015-2018 Photobit Sensor and Camera on 3-yr Exhibit at Smithsonian Museum of American History ([link](#))
- 2014 Society of Motion Picture and Television Engineers (SMPTE) Camera Origination and Imaging Medal ([link](#))
- 2014 Yale University Wilbur Lucius Cross Medal for Distinguished Achievement ([link](#))
- 2014 Trinity College Doctor of Science, *Honoris Causa* ([link](#))
- 2013 National Academy of Engineering Member ([link](#))
- 2012 National Academy of Inventors Charter Fellow ([link](#))
- 2011 National Inventors Hall of Fame Inductee ([link](#))
- 2010 Inventor of the Year, New York Intellectual Property Law Association ([link](#))
- 2009 IEEE Andrew S. Grove Award ([link](#))
- 2004 Royal Photographic Society (RPS) Progress Medal and Honorary Fellowship ([link](#))
- 2004 Trinity College Alumni Achievement Award ([link](#))
- 2003 Photographic Society of America (PSA) Progress Medal for Outstanding Contribution to Photography ([link](#))
- 1999 Space Technology Hall of Fame ([link](#))
- 1998 Fellow of the Institute of Electrical and Electronics Engineers (IEEE)
- 1997 Trinity College Century of Engineering Citation for Scientific and Technical Innovation
- 1996 NASA Exceptional Achievement Medal ([link](#))
- 1996 NASA Group Achievement Award
- 1995,2002 NASA Space Act Monetary Award
- 1994 JPL Senior Research Scientist ([link](#))
- 1992 JPL Lew Allen Award for Excellence
- 1989 Columbia-NCR Stakeholder Partnership Innovation Award
- 1988-1990 Analog Devices Career Development Award
- 1986-1990 National Science Foundation Presidential Young Investigator Award ([link](#))
- 1984-1985 IBM Faculty Development Award
- 1984 Yale University Henry Prentiss Becton Prize for Excellence in Engineering and Applied Science
- 1983 Hughes Aircraft Company Division Invention Award
- 1981-1984 Howard Hughes Graduate Fellowship

1980-1981 IBM Graduate Fellowship
 1979-1980 Yale University Fellowship
 1979 Trinity College Honors in Physics; President's Fellow in Physics; Senior Physics Prize
 1975 Henry Gund Junior Staff Achievement Award, Natural Science for Youth Foundation
 ([link](#), [link](#))
 1975 Simsbury, CT High School Physics Prize
 1973 Boy Scouts of America Eagle Scout and Order of the Arrow

Memberships:

National Academy of Engineering (NAE)
 International Image Sensor Society (IISS, Co-Founder and Past-President)
 Institute of Electrical and Electronic Engineers (IEEE, Life Fellow)
 Optical Society of America (OSA, Fellow)
 Society of Motion Picture and Television Engineers (SMPTE)
 American Association for the Advancement of Science (AAAS)
 National Academy of Inventors (NAI, Charter Fellow)
 Yale Science and Engineering Association (YSEA)

Professional Activities:

Conference and Workshop Leadership

2019 International Image Sensor Workshop (Chair Coach), Snowbird, Utah
 2017 International Image Sensor Workshop (Org. committee), Hiroshima, Japan
 2017 6th Annual Conference of the National Academy of Inventors (Pgm. Committee)
 2015 International Image Sensor Workshop (Org. committee), Vaals, Netherlands
 2014 3rd Annual Conference of the National Academy of Inventors (Pgm. Committee)
 2013 International Image Sensor Workshop (Co-Chair), Snowbird, Utah, USA
 2011 International Image Sensor Workshop (Org. committee), Hokkaido, Japan
 2009 International Image Sensor Workshop (Org. committee), Bergen, Norway
 2007 International Image Sensor Workshop (Org. committee & Local Arrangements Chair),
 Ogunquit, Maine USA
 2005 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors (Org.
 committee), Karuizawa, Japan
 2003 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors (Org.
 committee), Bavaria, Germany
 2001 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors (Chair), Lake
 Tahoe, Nevada, USA
 1999 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors (Org.
 committee), Karuizawa, Japan
 1998 8th European Symposium on Semiconductor Detectors (Org. committee)
 1997 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors (Org.
 committee), Brugge, Belgium
 1997-1998 IEEE International Solid State Circuits Conference (ISSCC) (Pgm. Committee)
 1996 IEEE/ISSCC Workshop on CMOS Imaging Technology (Org. committee)
 1996 SPIE Aerospace Sensing/Infrared Imaging - IR Readout Electronics III (Chair), Orlando,
 Florida, USA

- 1995 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors (Chair) Dana Point, California, USA
- 1994 SPIE Aerospace Sensing/Infrared Imaging - IR Readout Electronics II (Chair), Orlando, Florida, USA
- 1994 International CMOS Camera Workshop (Org. committee)
- 1993 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors (Co-Chair), Waterloo, Canada
- 1992 SPIE Aerospace Sensing/Infrared Imaging - IR Readout Electronics (Chair), Orlando, Florida, USA
- 1992 NASA/SDIO Innovative Long-wavelength Infrared Detector Workshop (Pgm. Committee)
- 1991-1993 IEEE International Electron Devices Meeting (IEDM) Detectors, Sensors and Displays (Pgm. Committee, '93 Chair)
- 1991 IEEE Workshop on Charge-Coupled Devices (Co-Chair), Waterloo, Canada
- 1990 IEEE Workshop on Advanced Solid-State Image Sensors (Chair), Harriman, New York, USA
- 1986 IEEE Workshop on Charge-Coupled Devices (Founding Chair), Harriman, New York, USA
- 1991 SPIE Infrared Sensors: Detectors, Electronics and Signal Processing (Pgm. Committee)
- 1990 SPIE/SPSE Symposium on Electronic Imaging (Pgm. Committee)
- 1987-1989 IEEE Semiconductor Interface Specialist's Conference (SISC) (Pgm. Committee)

Editor

- 2016-2018 Co-Editor-in-Chief, Technology and Innovation – Journal of the National Academy of Inventors ([link](#))
- 2016 Guest Editor-in-Chief, Special Issue of Sensors (MDPI) on Photon Counting Image Sensors ([link](#))
- 2016 Guest Editor, Special Issue of IEEE Transactions on Electron Devices on Solid-State Image Sensors, January 2016
- 2015 Co-Editor, Technology and Innovation – Special Issue on the 4th Annual NAI Conference
- 2014 Co-Editor, Technology and Innovation – Special Issue on the 3rd Annual NAI Conference
- 2013- Editorial Board, Technology and Innovation - Journal of the National Academy of Inventors
- 2009 Guest Editor-in-Chief, Special Issue of IEEE Transactions on Electron Devices on Solid-State Image Sensors, November 2009
- 2003 Guest Editor-in-Chief, Special Issue of IEEE Transactions on Electron Devices on Solid-State Image Sensors, January 2003
- 1997-1999 Associate Editor, IEEE Transactions on Very Large Scale Integration (VLSI) Systems
- 1997 Guest Editor Special Issue of IEEE J. Solid-State Circuits on the International Solid-State Circuits Conference (Images Sensors and Displays), December 1997
- 1997 Guest Editor-in-Chief Special Issue of IEEE Transaction on Electron Devices on Solid-State Image Sensors, October 1997

Selection Panels

- 2022-2025 National Academy of Engineering Committee on Membership

2016- National Inventors Hall of Fame Selection Committee and Board
 2014,15,17 National Academy of Engineering Peer Selection Committee
 2013-2018 National Academy of Inventors Fellow Selection Committee
 2007 IEEE Senior Member Selection Panel

Working Groups and Panels

2022 SPIE Emerging Technologies Panel (Advances in Optical and Mechanical Technologies for Telescopes and Instrumentation V) Montreal, Quebec, Canada
 1997 IEEE ISSCC Evening Discussion Session (Moderator)
 1996 DARPA/ETO Wearables in 2005 Workshop
 1996 NASA Origins Technology Workshop
 1996 IEEE ISSCC Evening Panel Discussion, Photons-to-Bits
 1995 Optoelectronics Industry Dev. Assoc. - Image Sensors Workshop (Chair)
 1994 National Science Foundation - Optical Science and Engineering Workshop
 1994 SPIE Smart Focal Plane Array Workshop
 1992 NASA Microtechnologies and Appl. to Space Systems Workshop
 1991 NASA Planetary Instruments Workshop (Panel Co-chair)
 1991 IEEE Device Research Symposium - Charge Storage Devices
 1991 NASA AstroTech 21 Workshop (Panel Chair)
 1990 National Academy of Sciences - NSF Graduate Fellowships Selection
 1991-1995 NASA OSAT Sensor Working Group (Code X)
 1991-1992 AIAA Sensor Systems Technical Committee
 1990-1994 SPIE Electronic Imaging Working Group

Ph.D. Dissertation Research Supervision:

[Stanislav Stefanov Todorov](#), Interactions of Low-Energy Oxygen Ions with Silicon Surfaces (Columbia 1987)
[Richard Edward Colbeth](#), GaAs Charge-Coupled Device Circuits for High Speed Signal Processing(Columbia 1989)
[Robert William Ade](#), Optical Interconnection by Vertical Coupling of Single-Mode Fibers to Semiconductors (Columbia 1990).
[El-Sayed Ibrahim Eid](#), Charge-Coupled Device Focal-Plane Processors (Columbia 1990)
[Jong-In Song](#), Resistive-Gate AlGaAs/GaAs Two-Dimensional Electron Gas Charge-Coupled Devices (Columbia 1990).
[Sabrina Elizabeth Kemeny](#), CCD Focal-Plane Image Reorganization Processors (Columbia 1991)
[David Vincent Rossi](#), InGaAs Resistive Gate Charge-Coupled Devices (Columbia 1992)
[Bedabrata Pain](#), Low Noise CMOS Circuits for On-Chip Signal Processing in Focal-Plane Arrays (Columbia 1993)
[Sunetra Kanchana Mendis](#), CMOS Active Pixel Image Sensors and On-Chip Signal Processing (Columbia 1994)
[Zhimin Zhou](#), On-Focal Plane Signal Processing for CMOS Active Pixel Sensors (UCLA 1997)
[Yibing \(Michelle\) Wang](#), High Dynamic Range CMOS Active Pixel Sensors (USC 2001)
[Kwang-Bo \(Austin\) Cho](#), Micropower, Microsized CMOS Camera-on-a-Chip (USC 2001).
[Suat Utku Ay](#), Design Issues and Performance of Large Format Scientific CMOS Image Sensors, (USC 2004).
[Leo Anzagira](#), Imaging Performance in Adv. Small Pixel and Low Light Image Sensors (Dartmouth, 2016)

[Saleh Masoodian](#), Readout Circuits for Quanta Image Sensors (Dartmouth, 2016)
[Jiaju Ma](#), Photon-Counting Jot Devices For Quanta Image Sensors (Dartmouth, 2017)
[Song Chen](#), Design of A Time-Resolved CMOS Image Sensor With High Conversion-Gain Pixels And Pipelined ADCs For Fluorescence Lifetime Imaging Microscopy (Dartmouth, 2017)
[Donald Hondongwa](#), Color X-Ray Imaging and Photon-Counting with Temporally Oversampled CMOS Image Sensors (Dartmouth, 2017)
[Dakota A. Starkey](#), A Novel Comparator Calibration Technique For Quanta Image Sensor System (Dartmouth, 2019)
[Wei Deng](#), Noise Performance Of Quanta Image Sensors (Dartmouth, 2022)
[Zhaoyang Yin](#), Robust and Low Power Readout Circuits for Quanta Image Sensors (Dartmouth, 2022)
[Kaitlin M. Anagnost](#) Extending the Wavelength Response of Photon-Counting Image Sensors (Dartmouth, 2023)
[Xin \(Eric\) Yue](#) Design of a Burst Mode Ultra-High-Speed High-Conversion-Gain CMOS Image Sensor (Dartmouth, 2023)
[Nicholas Shade](#) (Dartmouth, TBD)
[Joseph Lazzaro](#) (Dartmouth, TBD)

M.S. Dissertation Research Supervision:

[Rachel C. Zizza](#), Jots to Pixels: Image Formation Options for the Quanta Image Sensor (Dartmouth, 2015)

Courses Taught:

Semiconductor Devices and Lab (Junior-level and Graduate Level)
Advanced Topics in Semiconductor Devices (Graduate Level)
Principles of Device Microfabrication and Lab (Senior/Graduate Level)
Intermediate Electrical Circuits (Junior/Senior Level)
Digital Electronics (Junior/Senior Level)
Electrons in Solids (Senior Level)
Quantum Mechanics for Engineers (Senior Level)
Electromagnetics (Senior Level)
MOS Devices (Graduate Level)
Solid-State Image Sensors (Graduate Level) [AY 2024-2025]
Technology Innovation and Entrepreneurship (Graduate & Faculty Level)
Advanced Innovation and Entrepreneurship (Graduate Level) [AY 2024-2025]

Innovation and Entrepreneurship for STEM College Faculty (2014, 2016)
NATO/AGARD/NDRE Short Course on Advanced Image Sensors (1991)
Columbia University MSL Short Course on Charge-Coupled Devices (1988)
IBM-TV Device Microfabrication (1986, a full semester course)

Publications and Inventions:

Total publications (not incl. patents): 342
Please see [publications list](#) for full details.
Total Patents granted:
U.S. Patents Issued: 185
Other world-wide patent publications: 120
Please see [patents list](#) for full details. 305
H-index (E R Fossum, Google Scholar): 79, ~24,000 citations, fluctuates

Additional Volunteer Activities:

2014- National Inventors Hall of Fame: Camp Invention
2014-2015 Trinity College: STEM Advisory Board
2013- National Inventors Hall of Fame: Collegiate Inventors Competition Final Round Judge
2010-2012 University of New Hampshire: ECE Industrial Advisory Board
2008,2011 Home Owner’s Association Board of Directors
2002-2004 Trinity College: Board of Fellows
1999-2005 American Youth Soccer Organization (AYSO): Coach and Referee
1998-2023 Trinity College: Engineering Advisory Council (Chair 2000-2002)
1995-1998 Boston Museum of Science: Science-by-Mail Volunteer Scientist
1991-1995 Jet Propulsion Laboratory: Mentoring Program
1988-1990 Columbia University: Minority Double Discovery Center Board