

**Harvard Medical School/Harvard School of Dental Medicine
Format for the Curriculum Vitae**

Date Prepared: November 18, 2011
Name: Eliezer (Eli) Peli
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Work FAX: (617) 912 0111
Place of Birth: Tel Aviv, Israel (USA citizen)

Education

1976	BSc	Electrical Engineering (<i>cum laude</i>)	Technician-Israel Institute of Technology (IIT), Haifa, Israel
1978	MSc	Biomedical Engineering	Technician-Israel Institute of Technology (IIT)
1983	OD	Optometry	New England College of Optometry, Boston, MA

Postdoctoral Training

1983-1985	Physiological Optics and Psychophysics	Mentor, George Timberlake	Eye Research Institute, Boston, MA
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Faculty Academic Appointments

1976-1979	Teaching and Research Assistant	Department of Electrical Engineering and Julius Silver Institute of Biomedical Engineering Sciences	Technician, Haifa, Israel
1979	Adjunct Lecturer	Department of Electrical Engineering	Technician
1983-1995	Assistant Professor of Ophthalmology		Tufts University School of Medicine, Boston, MA
1985-1987	Assistant Scientist	Physiological Optics Unit	Eye Research Institute, Boston, MA
1986-1987	Associate in Ophthalmology		Harvard Medical School, Boston, MA
1987-1988	Consultant		Tel Aviv University Faculty of Medicine, Ramat-Aviv, Israel

1987-1988	Visiting Lecturer	Electro-Optics Technology Center	Tufts University, Medford, MA
1987-1990	Associate Scientist	Physiological Optics Unit	Eye Research Institute, Boston, MA
1987-1995	Instructor in Ophthalmology		Harvard Medical School, Boston, MA
1990-	Senior Scientist	Physiological Optics Unit	Eye Research Institute, Boston, MA
1990-	Adjunct Professor	Optometry and Vision Science	New England College of Optometry, Boston MA
1995-2002	Associate Professor of Ophthalmology	Schepens Eye Research Institute	Harvard Medical School, Boston, MA
2002-	Professor of Ophthalmology	Schepens Eye Research Institute	Harvard Medical School, Boston, MA
2003-	Adjunct Professor of Ophthalmology	Tufts- Medical Center	Tufts University School of Medicine, Boston, MA
2003-	Moakley Scholar in Aging Eye Research		Schepens Eye Research Institute, Boston, MA
2007 – 2009	Honorary Visiting Professor	Department of Electronics	The University of York, York, United Kingdom
2009-	Co-Director of Research		Schepens Eye Research Institute, Boston, MA
2009-	Visiting Professor		Dalian Maritime University , Dalian, China

Appointments at Hospitals/Affiliated Institutions

1983-	Special and Scientific Staff	Department of Ophthalmology	New England Medical Center, Boston, MA
1991-1996	Consultant in Optometry	Department of Ophthalmology	VA Medical Center, Boston, MA
2003-2013	Without Compensation (WOC) Optometrist	Surgical (Optometry) Service	VA Boston Healthcare System , Boston, MA

Other Professional Positions

1969-1972	Radio Communication Instructor (rank: Sergeant)	Israel Defense Force	
1979	Research Engineer	Laboratory of Medical Electronics, Department of Electrical Engineering, Technion, Haifa, Israel	
1979-1983	Research Associate	Electrophysiology Laboratory, New England College of Optometry, Boston, MA	
1983-1984	Staff Associate	Physiological Optics and Psychophysics Unit, Eye Research Institute, Boston, MA	
1985-1997	Consultant to Mentor O & O Inc	manufacturer of ophthalmic instruments, Hingham, MA (evaluation and development of ophthalmic products)	

1989	Consultant to Cambridge Instruments, Inc	(Reichert Ophthalmic Instruments), Buffalo, NY. (evaluation of ophthalmic products)
1989-1990	Consultant to Reflection Technology	manufacturer of miniature displays, Waltham, MA (evaluation of man-display interface)
1992-1995	Co-Founder and Chief Scientist	Visya Inc, developer of a new adjustable spectacle lens for presbyopia, Boston, MA
1993	Consultant to Reflection Technology	manufacturer of miniature displays (evaluation of binocular issues in head mounted displays)
1993-1995	Consultant to Optelec U.S. Inc.	manufacturer of electronic and optical low vision aids, Westford, MA (consulting on the development and evaluation of new technologies)
1993-1994	Consultant to Atlantic Aerospace Electronics Inc	R&D company in Digital Signal Processing and Radar, Waltham, MA (consulting on processing of retinal images)
1993-1999	Co-Founder and President	TaperVision Inc, a partnership developing a new fiber-optics based magnifier for the visually impaired, Newton, MA
1994	Consultant to Revtek Inc	R&D company in solid state display technologies, Torrance, CA (consulting on the development of new miniaturized display technologies)
1994-1995	Consultant to Winchester Digital Inc	R&D company developing digital low-vision aids, Cambridge, MA (consulting on product evaluation and testing)
1994-1996	Consultant to Nintendo Co. Ltd. Japan	computer games manufacturer (consulting on visual issues)
1994-	Member	Harvard University Division of Physical Medicine and Rehabilitation
1995-1997	Consultant to Virtual I/O, Seattle, WA	manufacturer of head mounted display (consulting on visual issues with HMD)
1996-	Consultant to Vision Care Inc	Israel, developer of intraocular telescopic lens for low vision.
1997	Consultant to Displaytech	Longmont, CO, manufacturer of miniaturized display technology (consulting on visual issues with HMD)
1997	Consultant to Colorado MicroDisplay Inc	Boulder, CO, manufacturer of miniaturized
1997	Consultant to Optics 1 Inc	Westlake Village CA, R&D optical company (consulting on visual issues with stereo HMD)
1997	Consultant to Optelec US Inc	manufacturer of electronic and optical low vision aids, Westford, MA (consulting on the development and evaluation of new technologies)
1997-2005	Consultant to Allergan Inc	(now Advanced Medical Optics) manufacturer of intra-ocular lens implants, Irvine CA (consulting on the simulation of image appearance with multifocal lenses)
1999	Consultant to Atlantic Aerospace Electronics Inc	R&D company in Digital Signal Processing and Radar, Waltham, MA (consulting on fusion of

1999	Consultant to Motorola Inc	multispectral images for helicopter pilot HMD night vision display) (consulting on optical design for micro-displays used in digital cameras and other applications)
1999-2001	Consultant to Olympus	Japan (consulting on visual issues with HMD)
1999-2001	Consultant to Exponent	Failure Analysis, Menlo Park, CA (consulting on visual issues with HMD)
1999-2005	Consultant to New England Research Institute	Waltham MA (consulting on the production of an educational video for low vision patients)
1999-2000	Consultant to Lane Research	Sherman Oaks, CA (consulting on design issues of variable lens for presbyopia)
1999-2005	Consultant to MicroOptical Inc	Westwood, MA (consulting on visual issues with HMD)
2000-2001	Consultant to Philips	Eindhoven, Netherlands (consulting on visual issues with near eye display)
2001	Consultant to NeuroVision	Israel (consulting on clinical trials for psychophysical treatment for adults with Amblyopia)
2002-2003	Consultant to Human Interface Technology Lab	University of Washington (Consulting on the development of Wearable Low Vision Aid)
2003-	Consultant to Chadwick Optical	White River Junction, VT (consulting on design of low vision ophthalmic lenses and their applications)
2003	Consultant to the Commission On Peace Officer Standard and Training (POST),	Department of Justice, State of California (consulting on contrast sensitivity screening guidelines)
2003	Consultant to Ingeio SAS	France (consulting on visual issues with HMD)
2004	Consultant to Sony	Japan (consulting on visual issues with HMD)
2004-2005	Imaging Consultant	New England College of Optometry (consulting on digital image processing and vision)
2005	Consultant to Palomar Medical Technologies	Burlington MA (consulting on visualization in skin treatment laser devices)
2005-2007	Consultant	New England Research Institute on a Medicare demonstration on low vision rehabilitation Project
2006-2009	Consultant	McGovern Institute for Brain Research, MIT, Cambridge MA (consulting on vision with macular degeneration in relation to fMRI study)
2006-2008	Consultant	MicroOptical Inc, Westwood, MA (consulting on design of in-the-lens telescope)
2007-	Consultant to Zoom Focus	CA manufacturer of variable liquid filled spectacle lenses for presbyopia (consulting on ophthalmic issue related to binocular vision and user comfort)
2008	Consultant	Samsung Israel, R&D group (consulting on mobile use of head mounted displays)
2009-2010	Consultant	Exponent, Failure Analysis, Menlo Park, CA (consulting on visual issues with 3-D TV on a

2009-	Consultant to Nintendo of America	Sony project) Redmond, WA, consultant with respect to the design, development, manufacturing, and/or safety of one or more products
2009	Distinguished Visitor	Department of Psychology, University of Hong Kong (10 days visit to help improve the department research and teaching)
2010	Consultant	Alcon Research , Ltd, Tx, Consulting on issues related to Low Vision Rehabilitation
2010-2014	Consultant	Northeastern University (Dr. Yuri Petrov) on a DoD grant titled "Oculomotor reflexes as a test of visual dysfunctions in cognitively impaired observers"
2011- 2012	Consultant	Google, Mountain View CA, , consultant with respect to the design, development, manufacturing, and/or safety of one or more products
2011- 2014	Consultant	Trivisio Prototyping Gmbh, Kaiserslautern, Germany, Discussing and advising on the architecture of the Visual Impaired Digital Platform (VIDP) European Union E5558 project

Major Administrative Leadership Positions

Local

1983-	Director, Vision Rehabilitation Service	New England Medical Center Hospitals (now Tufts Medical Center), Boston, MA
2009-	Co-Director of Research	Schepens Eye Research Institute, Boston, MA

Regional

National and International

Committee Service

Local

1987	Chair and organizer	First Eye Research Institute Image Processing Workshop, Feb. 11
1987	Member	Visiting Lecturer Committee
1990-1991	Chair	Research Services Oversight Committee
1990-1994	Member	Research Council, the Faculty Governing Body
1990-1994	Head	Physiological Optics and Psychophysics Unit
1990-1993	Member	Appointments and Promotions Committee

1991-1993	Chair	Appointments and Promotions Committee
1992	Member	Benefits Evaluation Committee
1994-2000	Member	Development Advisory Group
1994-1997	Head	Vision and Visual Optics Focus Group
1995- 2006	Member	Technology Transfer Committee
1997-2001	Member	Appointments and Promotions Committee
2000-2002	Member	Training committee
2002	Member	Starr Center for scientific Communications
2002-		Harvard Medical School Dept. of Ophthalmology Executive Committee (Committee of Professors)
2003	Member	Information Resources
2003- 2006	Member	Appointments and Promotions Committee
2004- 2005	Member	Self Study Operations committee
2005-	head of the computer module	Core grant
2005-2006	Member	Midlevel faculty search committee
2006-	Member	Computer committee
2006	Member	Clinical Affiliates committee
2006-	Chair	Technology Transfer Committee
2007 – 2008	Member	Faculty Investment Advisory Committee
2009		Harvard Medical School, ad hoc evaluation committee to consider the promotion to professor of Otology and Laryngology
2009- 2012	at-large member	HMS Department of Ophthalmology Promotions and Reappointments Subcommittee
2009	Reviewer	Harvard Catalyst 2 grants

Regional

National and International

1985-1988	Member	School of Optometry Advisory Committee (USA), Tel Aviv University School of Medicine, Tel Aviv, Israel
1986	Member	“Technologies to Assist the Low Vision Elderly”, Workshop arranged by NASA, AOA, NIA, VA, and NIHR, Washington, DC
1989-1992	Chair	Small Business Innovation Research (SBIR), NIH Special Study Sections
1989-1993	Member	Small Business Innovation Research (SBIR), NIH Special Study Sections
1990-	Member	Technical Advisory Board, Helen Keller Eye Research Foundation, Birmingham, AL

1991	Member	Laboratory Advisory Group to Air Force on applied spatial vision models for target detection and recognition, Armstrong Laboratory and the Office of Scientific Research, San Antonio, TX
1991-1992	Member	Professional Advisors Panel, The Low Vision Center, Boston Aid to the Blind
1992	Member	The Third Clinical Research Workshop, co-sponsored by the American Academy of Optometry and the American Optometric Association, Forest Grove, OR
1994	Member	Review of NASA Spacelab-4 Neurolab applications, NIH Special Study Section
1994	invitational member	Rehabilitation Research and Development Service Strategic Planning Conference: Communication, Sensory and Cognitive Aids, Blind and Low Vision Rehabilitation, Department of Veterans Affairs, Birmingham AL
1992-1994	Chair	Young Investigator Award Committee, SPIE Conference "Visual Communications and Image Processing 93, 94"
1995-1996	Chair	Small Business Innovation Research (SBIR), NIH Special Study Sections
1996	Reviewer	Engineering and Physical Sciences Research Council, United Kingdom
1996 -1997	Member	Aeronautics Research and Technology Sub-committee (ARTS) on Human Factors of the Aeronautics Advisory Committee, NASA
1996-1999	ad hoc Member	Working Group on Low Vision, National Eye Health Education Program, NIH for the development of a public information and education program
1997	Member	Low vision and its rehabilitation panel, Vision Research – A National Plan 1999 – 2003, National Eye Institute
1997	Member	Workshop on technology needs for the blind and visually impaired, Carroll Center, Newton MA
1997	Chair	Special Emphasis Panel on Biomedical Research Technology, National Center for Research Resources, NIH
1997-2001	Member	Aeronautics Research and Technology Sub-committee (ARTS) on Aviation Operating Systems Subcommittee of the Aeronautics Advisory Committee, NASA
1997	Member	NRL/ONR Review Panel (US Navy postdoctoral fellowships program), American Society for Engineering Education (ASEE)
1998	Member	Special Emphasis Panel reviewing Clinical Research grants, NEI
1999	Chair	Small Business Innovation Research (SBIR), NIH Special Study Sections
1999- 2000	Member	Organizing committee, VIII International Conference on Myopia, Boston MA
2001-2002	Member	Aero-Space Technology Advisory Committee, Special Government Employee, NASA
2002	Member	Review Panel, National Defense Science & Engineering Graduate Fellowship Program, American Society for Engineering Education (ASEE)
2002	Member	Small Business Innovation Research (SBIR), NIH Special Study Sections

2003	Member	NIH Visual System SEP study section (ZRG1 DBD (10)) Brain Disorders and Clinical Neuroscience/Visual System SBIR and Devices, Bethesda, MD
2003	Member	Low vision and its rehabilitation panel, Vision Research – A National Plan 2004 – 2009, National Eye Institute
2003	Member	Army Research Labs, Metric Standardization Workshop, Fairfax VA
2003	Member	Advisory Panel, Wang CC, Kolinski CJ, Schwartzberg JG, Shanklin AV. Physician Guide to Assessing and Counseling Older Drivers. Washington DC: National Highway Safety Administration
2004	Member	NIH Visual System SEP study section (ZRG1 IFCN A (02) M) Bethesda, MD
2003-2004	Member	Program Committee, The First International Conference on Biopic Driving, London, UK
2005	Member	Review Panel, National Defense Science & engineering Graduate Fellowship Program, American Society for Engineering Education (ASEE)
2005	Member	Tecnis Achromat Expert Meeting, Advance Medical Optics, Inc (AMO), Fort Lauderdale, FL
2005	Member	NIH Visual System SBIR study section (ZRG1 BDCN-F 12 B) Bethesda, MD
2005-2005-2006	Member Member	Bressler Prize in Vision Science Award Committee Program Committee, The Second International Conference on Biopic Driving, London, UK
2006	Member	NIH Visual System Small Business study section (ZRG1 BDCN-F (12)) Bethesda, MD
2007	Member	NIH Visual System Small Business study section (ZRG1 BDCN-F (12) B) Bethesda, MD
2007		National Science Foundation (NSF) Research to Aid Persons with Disabilities Program reviewer of grants
2008	Member	US Department of Transportation, Federal Motor Carrier Safety Administration, Medical Expert Panel on visual function and commercial truck driving
2008	Member	Advisory Board, Ovation Pharmaceuticals, reviewing Vigabatrin-related visual field defects.
2008	Member	site visit committee for the review of Industrial Research Chairs – Regular, Natural Sciences and Engineering Research Council of Canada. Montreal, Canada
2009	Member	NIH Study Section reviewing the Challenge Grants (Special Emphasis Panel / Scientific Review Group 2009/10 ZRG1 IFCN-A (58) R)
2010-	Member	ANSI Z80.32 - Methodology for Representation of Optically-Induced Visual Phenomena. National Standard committee
2011	Member	NIH Study Section reviewing for a multi-agency robotics initiative (Special Emphasis Panel / Scientific Review Group 2011/08 ZRG1 BST-J (50) B)

Professional Societies

1982-	Fellow (2001)	Optical Society of America
1982-	Fellow (1984)	American Academy of Optometry
1983-	Member	Association for Research in Vision and Ophthalmology
1985-	Fellow (2007)	International Society of Photo-Optical Instrumentation Engineers (SPIE)
1987-1993	Member	Institute of Electrical and Electronics Engineers (IEEE) Engineering in Medicine and Biology Society
1991-1994	Member	Program Committee Low Vision Research Group (LVRG)
1992-1993	President	Program Committee LVRG
1992-	Fellow (2003)	Society for Information Display
1992-1994	vice chair	Vision Science Section, American Academy of Optometry
1994-1996	Chair	Vision Science Section, American Academy of Optometry
1994-1999	founding member	Executive committee of the International Society of Low Vision and Rehabilitation Research
2004-2007	Vice Chair	Optical Society of America, clinical program committee
2005-2007	Member	Science and Engineering Council, Optical Society of America
2005	Program Committee member	OSA Vision Meeting 2005, University of Arizona, Tucson, AZ
2006	Program Committee member	OSA Vision Meeting 2006, Rochester University, Rochester NY
2007	Program Committee member (Chair, Clinical)	OSA Vision Meeting 2007, UC Berkeley, Berkeley CA
2007	Member	Honors and Awards committee, Society for Information Display (SID)
2009-	Member	Program Committee, SPIE Conference on Human Vision and Electronic Imaging XV, San Jose CA

Grant Review Activities

Editorial Activities

1983-	Ad hoc reviewer for the following journals:	Vision Research, Investigative Ophthalmology and Vision Science, Journal of the Optical Society of America A, Applied Optics, Optical Engineering, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Medical Imaging, Optometry and Vision Science, Perception and Psychophysics, Applied Human Factors, Hypertension, Journal of Visual Impairment and Blindness, Visual Impairment Research, IEEE Transactions on Image Processing, Journal of Vision, Experimental Brain Research, ACM – Transactions on Applied Perception, Archives of Ophthalmology
1996-2009	Member	Advisory Editorial Board, Visual Impairment Research (formerly Journal of Videology)
1997-2004	Member	Editorial Board, Topical Editor, Journal of Optometry and Vision Science
2001	Guest Editor	Two issues of the Journal of Optometry and Vision Science on the aging

		eye (May and June)
2002-2010	Member	International Advisory Board, Ophthalmic and Physiological Optics. UK
2003	Co-Guest Editor	Special issue on selected papers from the 2002 SID International Symposium. Journal of the SID vol 11:
2006-2007	Guest Editor	Special issue on driving with low vision, Visual Impairment Research
2010-	Associate Editor	Image quality/fidelity, IEEE Transactions on Image Processing
2010-	Member	Editorial Board, Ophthalmic and Physiological Optics. UK
2010-	Review Editor	Frontiers in Perception Science

Honors and Prizes

1974	Prize for Academic Excellence, Faculty of Electrical Engineering, Technion, Israel Institute of Technology
1975	Award for Outstanding Studies, Technion, Israel Institute of Technology
1976	Gutuirth Graduate Student Scholarship, Technion, Israel Institute of Technology
1979	Willer Scholarship, Israel Department of Justice
1979	Hebrew Technical Institute Scholarship, American Society for Technion
1980	Beta Sigma Kappa – Honor Student
1980	Annual Student Scholarship, Optical Society of America – New England Section -
1981	Bernell Freshman Scholarship Award, New England College of Optometry
1982	National Dean’s List
1982	Corning Glass Works Foundation Scholarship, American Optometric Foundation -
1983	Daniel Kuperstein Memorial Award for excellence in optics, New England College of Optometry
1983	Harold Kohn Memorial Award for Best Original Investigative Research, American Optometric Foundation
1984	Fellow, American Academy of Optometry
1992	Best Investigative Paper of the Year Award from the New England College of Optometry for the paper “Differences in Tests of Aniseikonia”
1992	Paper by Peli et al. “Image Enhancement for the Visually Impaired: Simulations And Experimental Results, Invest. Ophthalmol. Vis. Sci, (1991); 32, 2337-2350” was selected to be republished in the Yearbook of Medical Informatics 92, Advances in an Interdisciplinary Science, Schattauer, Stuttgart, Germany
1999	Paper by E Peli, “Multiresolution, error-convergence halftone algorithm, J Optical Soc Am A (1991); 8: 625-636.” Was republished in Selected papers on Digital Halftone JP Allebach ed. SPIE Milestone Series v. MS 154, SPIE- The International Society for Optical Engineering, Bellingham, WA
2000	The Stichting blindenpenning Lecture at the ECVF 2000 (the annual meeting of the European Conference on Visual Perception). Groningen, Holand
2001	Keynote lecture at the EuroSight 2000, the European Low Vision conference
2001	The Glenn A Fry Lecture Award, American Academy of Optometry.
2001	The paper by F. Vargas-Martin and E. Peli “Eye movements with peripheral visual field loss while walking” was awarded the Atwell Award for the best low vision

- paper presented at ARVO 2001 by a young Investigator (Fernando Vargas-Martin)
- 2001 Fellow of the Optical Society of America: For exploring impaired vision with imaginative psychophysics and addressing findings with innovation and excellence in engineering.
- 2002 Honorary Master in Medicine, Harvard Medical School.
- 2003 SID Fellow Award (Society for Information Display): For outstanding contributions in the application of vision science to information display technology.
- 2003 The Video “Hope in Sight” (for which E Peli was the senior consultant and co-investigator) has won the Telly Award.
- 2003 Distinguished Career Award, New England College of Optometry’s Alumni Association
- 2004 The Kok van Alphen (keynote) Lecture at the annual meeting of the Dutch Ophthalmologic Society. Amsterdam, Holland
- 2004 Keynote lecture at the 13th International Annual Conference of the Neuro-Optometric Rehabilitation Association, Boston, MA
- 2004 Alfred W. Bressler Prize in Vision Science, The Jewish Guild for the Blind (shared with Robert Massof, PhD)
- 2005 The Eliahu I. And Joyce Jury Award Lecture, Department of Electrical Engineering at the Technion-Israel Institute of Technology. Haifa, Israel.
- 2005 Poster by M. Fullerton and E. Peli “MPEG-Based Image Enhancement for the Visually Impaired: Implementation on a General-Purpose PC Platform” was selected as a “Distinguished Poster Paper” of the 2005 SID International Symposium. Boston, MA
- 2005 Keynote Speaker, Assistive Technology Design Fair 2005, University of Massachusetts Lowell, Francis College of Engineering. Lowell, MA
- 2005 Keynote Speaker, 1st IEEE Workshop on Computer Vision Applications for the Visually Impaired, San Diego, CA
- 2005 Dr. William Feinbloom Distinguished Lecture in Low Vision, Envision New York, SUNY-College of Optometry. New York, NY
- 2006 The H. Talmage Dobbs Lectureship in Ophthalmology, Emory Eye Center, Emory School of Medicine. Near-Peripheral Vision Reorganization in Macular Degeneration. Atlanta, GA
- 2006 Honorary Doctor of Science degree, State University of New York, New York, NY
- 2006 The Pisart Vision Award, Light house International, New York, NY
- 2006 Keynote Speaker, 2nd International Symposium on Visual Computing (ISVC06), Lake Tahoe, Nevada
- 2007 Fellow of the International Society for Optical Engineering (SPIE)
- 2007 Honorary Visiting Professor in the Department of Electronics, The University of York, York, United Kingdom
- 2008 Keynote speaker Sixth Annual USC Vision Symposium, University of Southern California, Los Angeles, CA
- 2009 Inaugural keynote speaker for the joint research symposium of the British College of Optometrists annual conference and British Universities Committee for Optometry

- annual conference, Brighton, UK
- 2009 Alcon Research Institute Vision Award (shared with Robert Massof, PhD)
- 2009 Poster by N.C. Ross, A.R. Bowers, E. Peli “Consideration of Optical Scotomas In Designing Visual Field Expansion Devices” was awarded the Envision-Atwell Award for the best low vision presentation at ARVO 2009 by a young investigator (Nicole Ross)
- 2009 Keynote speaker at the Gjøvik Color Imaging Symposium, Gjøvik University College, Gjøvik, Norway
- 2009 The William Feinbloom Award, American Academy of Optometry
- 2010 The Helmholtz Lecture, Helmholtz Institute, Utrecht Holland
- 2010 The Otto Schade Prize, The Society for information Display, (SID)
- 2010 The 21st Bobier Award Lecture, School of Optometry, University of Waterloo, Waterloo Canada
- 2010 Keynote speaker, Elite School of Optometry International Vision Science and Optometry Conference 2010, Chennai, India
- 2010 Keynote speaker, European Congress on Vision Impairment, Valladolid, Spain
- 2010 The Edwin H Land Medal, Optical Society of America and the Society for Imaging Science and Technology
- 2011 Keynote speaker, Syn og STROKE Conference, Copenhagen, Denmark
- 2011 Keynote speaker, Colloque 2.0 Readaptation - Aides techniques, St-Hyacinthe, Quebec, Canada

Report of Funded and Unfunded Projects

Funding Information

Past

1984-1988	NIH/ R01-EYO5450 Computer Processing of Retinal Nerve Fiber Defects \$300,191	PI
1985-1991	NIH/ R01-EYO3966 Low Vision Reading: Optimizing Performance	Co-Investigator (G Timberlake, PI)
1986-1987	Alcoa Foundation PI Computer-Enhanced Images for Low Vision Patients \$25,200	
1986-1989	NIH/ R01-EYO5957-01-03 Model-Based Image Enhancement for the Visually Impaired \$444,981	PI
1989-1990	Teubert Charitable Trust Foundation PI Portable Image Enhancement Low Vision Aid \$10,000	
1989-1992	NIH/ R01-EYO5957-04-06 Model-Based Image Enhancement for the Visually Impaired	PI

	\$647,156 Total Award	
1990-1991	Teubert Charitable Trust Foundation PI Portable Image Enhancement Low Vision Aid \$10,000	
1991-1992	The Ford Motor Company Fund PI Head-mounted Image Enhancement Low Vision Aid \$50,000	
1992-1993	The Ford Motor Company Fund PI Head-mounted Image Enhancement Low Vision Aid \$25,000	
1992-1993	NIH/R43-EY09789 (SBIR I) Co-Investigator (J Rabinovich, PI) A New Adjustable Spectacle Lens for Presbyopia Awarded to Visya Inc (E Peli, co founder) \$50,000	
1992-1993	NIH/R43-EY0171 (SBIR I) Co-Investigator (Tamar Peli, PI) Automated Analysis of Retinal Images Awarded to Atlantic Aerospace Electronics \$50,000	
1992-1993	NIH/R43-EY10477 (SBIR I) Consultant (A Tanielian, PI) Virtual Image Display for the Visually Impaired	
1992-1995	NIH/R42-EY09506 (SBIR II) Consultant (M. Sussman, PI) A Digital Video Camera for Low Vision Aids	
1993-1994	DigiVision Inc PI Live Video Image Enhancement for Low Vision \$16,150 direct cost	
1993-1997	NIH/ R01-EYO5957-04-06, PI Model-Based Image Enhancement for the Visually Impaired \$1,100,000	
1994	NIH/R43-EY1500 (SBIR I) Co-Investigator (W. Siegmund, PI) Fiber Optic Reading Magnifiers for Visually Impaired Awarded to TaperVision Inc (E Peli, President) \$79,500 Total Award	
1994-1997	NIH/ R01- EY10285- 01-03, PI Low Vision Reading with Electronic Display \$393,172 direct cost	
1995	Hewlett Packard Grant No. 28018 PI Orientational Harmonics for Image Quality Metric in Halftone Images \$70,082 direct cost	
1996-1997	NIH/R43-EY10789 (SBIR I) Co-Investigator (R. Hier, PI) Electronic Tailoring for Low Vision Awarded to DigiVision Inc \$100,000 Total Award	
1996-1997	NIH/R43- EY11569 (SBIR I) Co-Investigator (W. Siegmund, PI) Large, Light-Weight Fiber Optic Reading Magnifier Awarded to TaperVision Inc (E Peli, President)	

\$100,000 Total Award

1995-1997 NIH/R42-EY1500 (SBIR II) Co-Investigator (W. Siegmund, PI)
 Fiber Optic Reading Magnifiers for Visually Impaired
 Awarded to TaperVision Inc (E Peli, President)
 \$750,000 Total Award

1997-1998 NIH/R43-EY11939 (SBIR I) Co-Investigator (W. Siegmund, PI)
 3-dimensional calibration target for confocal microscope
 Awarded to TaperVision Inc (E Peli, President)
 \$100,000 Total Award

1997-1998 N97-114 US Navy (SBIR I) Co-Investigator (K Ellis, PI)
 Integrated color coding and monochrome multi-spectral fusion
 Awarded to Atlantic Aerospace Electronics Corp
 \$70,000 Total Award

1998-1999 NIH/ R43-EY12056 (SBIR I) Co-Investigator (M Doane, PI)
 An instrument for diagnostic tear film interferometry
 Awarded to OptoVision Inc (E Peli Co-founder)
 \$99,994 Total Award
 Declined participation due to over-commitment with other grants

1998-1999 NIH/ R43- EY 12443 (SBIR I) Co-Investigator (R Goldstein, PI)
 Enhanced video for adults with low vision
 Awarded to New England Research Institute
 \$100,000 Total Award

1998-2001 NIH/ R01- EY10285- 04-07 PI
 Low Vision Reading with Electronic Display
 \$991,730

1998-2001 DOE/ DE-FG 02-91ER61229 Co-Investigator (Robert Webb, PI)
 Center of Excellence of Lasers in Medicine
 \$1,000,000

2000-2003 NASA-Ames Cooperative agreement No. NCC 2-1039 PI
 Development and Evaluation of a Binocular Stereoscopic Display System with Coupled
 Convergence and Accommodation Demands
 \$399,573 direct cost

1998-2003 NIH/ R01-EYO5957-11-15 PI
 Model-Based Image Enhancement for the Visually Impaired
 \$1,672,571

2000-2001 NIH/R43- EY12912 (SBIR I) Co-Investigator (Mark Spitzer, PI)
 Video display for the visually impaired
 Awarded to Microoptical Corp
 \$100,000 Total Award

2000-2001 JCRC (SERI- MEEI) pilot project grant Co-PI (Eliot Berson, Co-PI)
 Tri-Field lens correction for binocular tunnel vision patients
 \$34,965 direct cost

2000-2005 NIH/ R24-EY12890-01-05 PI
 Engineering approach to low vision rehabilitation
 \$5,370,425 Total Award

2001-2003	NIH/R42 – EY4412443 (SBIR II) Enhanced video for older adults with low vision Awarded to New England Research Institute \$700,000 Total Award	Co-Investigator (Sharon Tennstedt, PI)
2001- 2004	NIH/R42- EY12912 (SBIR II) Video display for the visually impaired Awarded to Microoptical Corp \$750,000 Total Award	Co-Investigator (Noa Rensing, PI)
2003-2005	NIH/R43 – EY014723 (SBIR I) Field expansion prism glasses for homonymous hemianopia Awarded to Chadwick Optical \$464,000 Total Award	Co-Investigator/Consultant (Karen Keeney, PI)
2003-2008	NIH/ R01-EYO5957-16-21 Model-Based Image Enhancement for the Visually Impaired \$2,325,000 Total Award	PI
2003-2005	NSF SBE-0350356 SLC Catalyst: Perceptual Learning and Brain Plasticity Awarded to Univ. of Minnesota \$200,838 direct cost	Co-Investigator (Dan Kersten, PI)
2004-2009	NIH/ R01-EY014105 Vision Substitution Through the Tongue Awarded to Wicab Inc. \$1,805,596 Total award	Co-Investigator/Consultant (Paul Bach–y–Rita, PI)
2004	Dept. of Defense W81XWH-04-1-0892 Low Vision Research at The Schepens Eye Research Institute \$800,000 Total award (our section \$183,236)	Co-Investigator (Darlene A. Dartt, PI)
2005	Dept. of Defense W81XWH-04-1-0892 P00001 Low Vision Research at The Schepens Eye Research Institute \$1,654,000 Total award (our section \$277,083)	Co-Investigator (Darlene A. Dartt, PI)
2005-2010	NIH/ R01-EY016159 Reorganization of Visual Cortex in Macular Disease Awarded to MIT \$1,000,000 direct cost	Co-Investigator/Consultant (Nancy Kanwisher, PI)
2006-2008	NIH/ R44-EY014723 (SBIR II) Field expansion prism glasses for homonymous hemianopia Awarded to Chadwick Optical \$749,692 Total award (our sub award \$315,964)	Co-Investigator/Consultant (Karen Keeney, PI)
2006-2008	NIH/ R43 EY016615 (SBIR I) In-the-lens Embedded Bioptic Telescope Awarded to MicroOptical \$198,000 Total award	Co-Investigator/Consultant (Noa Rensing, PI)
2006 – 2010	NIH/P30 EY003790 (Core) Core Grant for Vision Research \$500,000 Direct award	Chair of Computer Core (J Zieske, PI)
2006-2007	Hong Kong Research Grants Council	Co-Investigator (Li Li, PI)

	An investigation of visual cues for active control of 3D self-motion in the normally-sighted and the low-vision patients Awarded to the University of Hong Kong HK\$680,972 (~ \$87,300) Total award	
2006-2008	Corporate Sponsored Research	Co PI with Russell Woods
	Neural aspect of adaptation to blur \$200,000 Total award	
2007	Dept. of Defense W81XWH-07-2-0038	Co-Investigator (Darlene A. Dartt, PI)
	Low Vision Research at The Schepens Eye Research Institute Granted by the Telemedicine and Advanced Technology Research Center (TATRC) \$1,683,000 Total award (our section \$196,000)	
2007	Pearle Vision Foundation	PI
	Perceptual Motor Training with Peripheral Prisms for People With Homonymous Hemianopia Total award \$10,000	
2007	Corporate Sponsored Research	Co PI with Russell Woods
	Touch-Screen-based Letter Contrast Sensitivity Test \$160,000 Total award	
2008 – 2010	NIH/ K99 EY018680	Mentor (Alex Bower, PI)
	Driving with Central Visual Field Loss: Attention, Search and Detection Pathway for Independence grant \$598,160 Total award	
2008	Dept. of Defense W81WXH-07-2-0038 P00001	Co-Investigator (Darlene Dartt, PI)
	Low Vision Research at The Schepens Eye Research Institute Granted by the Telemedicine and Advanced Technology Research Center (TATRC) \$1,697,000 Total award (our section \$116,700)	
2009	Analog Devices, Inc.	PI
	Increasing the quality of compressed video through MPEG-based contrast enhancement Unrestricted grant \$50,000 Total award	
2009-2010	NIH/ S10RR028122	PI
	Driving Simulator for Vision Research A shared instrument grant \$332,840 Direct Cost	
2010	Corporate Sponsored Research	PI
	The impact of Luminance loss on patients with AMD \$ 181,357 Total Award	
2009-2011	NIH/R21 AG034553	Co-Investigator (Gang Luo, PI)
	Driving performance evaluation based on long term video monitoring of habitual driving by visually impaired \$529,375 Total Award	
2009- 2011	NIH/ R01EY012890-09S1	PI
	Revision Competitive ARRA Supplement to Engineering approach to low vision rehabilitation \$450,441 Total Award	

Current

2006-2011	NIH/ R01-EY12890-06-10	PI	Engineering approach to low vision rehabilitation \$ 6,614,398 Total Award
2007-2012	NIH/ R01 EY016093	Partner (Norberto Grzywacz, PI)	Mid-Level Vision Systems for Low Vision (Bioengineering Research Partnership) Awarded to the University of Southern California \$5,816,039 Total award (our share \$2,028,978)
2009 – 2013	NIH/R01 EY01928	Co-Investigator (Peter Bex, PI)	Enhancement of Dynamic Media for Visually-Impaired People \$1,925,000 Total Award
2009 – 2014	NIH/ R01-EYO5957-21-25	PI	Model-Based Image Enhancement for the Visually Impaired \$ 2,406,250 Total Award
2010-2014	NIH/R01 EY019100	Co-Investigator (Russell Woods, PI)	Watching Television and Movies with Low Vision \$1,942,720 Total Award
2010-2013	DoD/ (DMRDP) DM090420	Co-PI (with Alex Bowers)	Contract W81XWH-11-2-0082 Grant 10499150 Defense Medical Research and Development Program, Applied Research and Technology Development Award- DM090420 Rehabilitation of Visual and Perceptual Dysfunction after Severe Traumatic Brain Injury \$1,429,567 Total Award
2010-2013	DoD/ GRANT10499680	Co-Investigator (Gang Luo, PI)	Defense Medical Research and Development Program, Applied Research and Technology Development Award- DM090201 Development of a Vision Assistive Device for Veterans with TBI Associated Visual Dysfunctions Injury \$933,853 Total Award
2011-2012	TATRC		

Current Unfunded Projects

Report of Local Teaching and Training

Teaching of Students in Courses

1979	Technion, Israel Institute of Technology	Lecturer, Department of Electrical Engineering, Technion, “Visual and Auditory Systems.” 25 undergraduate Electrical Engineering students Developed course materials and presented lectures (1 semester).
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1983	New England Medical Center Hospitals	Low Vision – Prescribing for near. Massachusetts Eye & Ear Infirmary Resident Lecture Series.
1986	New England Medical Center Hospitals	Low Vision – Prescribing for near. Massachusetts Eye & Ear Infirmary Resident Lecture Series.
1989	New England Medical Center Hospitals	Eye movements-classification. Neurology Basic Science Seminars, New England Medical Center Hospitals.
1992	New England Medical Center Hospitals	Visual rehabilitation methods after cataract extraction. A lecture to the Greater Boston Ophthalmology Residents’ Basic and Clinical Science Course.
1994	New England Medical Center Hospitals	Physiology of eye movements. Greater Boston Ophthalmology Residents’ Basic and Clinical Science Course
1995-	New England Medical Center Hospitals	2 classes a year on low vision rehabilitation given to the residents and technical staff
1987-1988	Tufts University	Visiting Lecturer, Electro-Optics Technology Center, Tufts University, Medford, MA. “Applied Image Processing” lab course – Development and team teaching of 2 lab sessions C Whitney and E Peli. Template matching, applied image processing lab course (EE191F)
		J.F Brenner and E Peli. Biomedical image analysis I: Practical transformations, II: The challenge of scene segmentation, applied image processing lab course (EE191F)
2000-2001	Tufts University	Member, Bioengineering medical school partnership. Offering research opportunity in my lab for engineering seniors and MS/MD students.
1990-1997	New England College of Optometry	Adjunct Professor, New England College of Optometry, Boston MA. “Advanced Vision Rehabilitation” course developer 12-20 students, 5 sessions of 2 hours each year
1999-2003	New England College of Optometry	Preceptor of students in the Research Honor Program.
2003-	New England College of Optometry	Faculty of the graduate program (Master program in Vision Science)
2008-	New England College of Optometry	Faculty of the graduate program (PhD program in Vision Science)

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

1995-1996	Schepens Eye Research Institute	Steve Lehar, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently Image Analyst and Aerial Photography Test Pilot, Flight Landata, North Andover, MA
1995-1996	Schepens Eye Research	Nuala Brady, PhD, postdoctoral trainee, Schepens Eye Research

	Institute	Institute. Currently faculty member, School of Psychology, University College Dublin, Ireland.
1995-1997	Schepens Eye Research Institute	Catherine W Burns, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently faculty member Pierce College, Puyallup, WA
1999- 2001	Schepens Eye Research Institute	Russell Woods, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently, Assistant Scientist, Schepens Eye Research Institute, Instructor, Harvard medical School.
1999- 2000	Schepens Eye Research Institute	Li Li, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently, faculty member, University of Hong Kong Dept. of Psychology.
2000- 2001	Schepens Eye Research Institute	Jinshan Tang, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently, Associate Professor School of Technology Michigan Technological University, Houghton, MI.
2000-2002	Schepens Eye Research Institute	Fernando Martin-Vargas, PhD postdoctoral trainee, Schepens Eye Research Institute. Currently, faculty member, Laboratorio de Optica de Edificio Universidad de Murcia, Spain.
2000-2002	Schepens Eye Research Institute	Yitzhak Yitzhaki PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently Senior Lecturer, Department of Electro-optics, Ben-Gurion University, Israel
2002-2004	Schepens Eye Research Institute	Gang Luo, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently Assistant Scientist, Schepens Eye Research Institute, Instructor, Harvard medical School
2001-2005	Schepens Eye Research Institute	Alex Bowers, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently, Assistant Scientist Schepens Eye Research Institute, Assistant Professor, Harvard medical School
2002-2003	Schepens Eye Research Institute	Jehonhoon Kim, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently Associate Professor, Head, Dept. of Electronic Communication, Shinheung College, Korea
2006- 2010	Schepens Eye Research Institute	Fuensanta Vera-Diaz, PhD, OD postdoctoral trainee, Schepens Eye Research Institute. Currently Research Assistant Professor, New England College of Optometry
2006-2009	Schepens Eye Research Institute	Long To, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently Research Associate, Center for Intelligent Machines, Dept. of Electrical Engineering, McGill University Montreal, Canada
2007-	Schepens Eye Research Institute	Matthew Bronstad, PhD, postdoctoral trainee, Schepens Eye Research Institute. Instructor , Harvard medical School
2008 - 2009	Schepens Eye Research Institute	Xianping Fu, PhD, postdoctoral trainee, Schepens Eye Research Institute. Currently Associate Professor, Information Science Technology school, Dalian Maritime University, Dalian, China
2008 -	Schepens Eye Research Institute	PremNandhini Satgunam, PhD, postdoctoral trainee, Schepens Eye Research Institute, Instructor , Harvard medical School
2009-	Schepens Eye Research Institute	Andrew Haun, PhD, postdoctoral trainee, Schepens Eye Research Institute

2010-	Schepens Eye Research Institute	Alex Daejoon Hwang, PhD, postdoctoral trainee, Schepens Eye Research Institute
2011-	Schepens Eye Research Institute	Matteo Tomasi, PhD, postdoctoral trainee, Schepens Eye Research Institute (Jointly mentored with Gag Luo),

Clinical Supervisory and Training Responsibilities

1983-	New England Eye Center, Tufts Medical Center	Training of Residents including supervision at clinical session and 2 lectures a year
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Laboratory and Other Research Supervisory and Training Responsibilities

1985-1986	Schepens Eye Research Institute	Steven Shapiro, PhD, summer intern (2 summers), currently Associate Prof of Physics, Guilford College. NC.
1991	Northeastern University	Research supervision and outside member, PhD Committee, Jian Yang, Department of Psychology, Northeastern University. Dissertation title: "Bottom-up Visual Image Processing Probed with Weighted Hermite Polynomials". Currently with Kodak Corp. Human Factors Research in Rochester, NY.
2000	Tufts University	Dan S Landmann, MS, MD, Senior biomedical Engineering Project, Currently Ophthalmologist
2001-2002	Schepens Eye Research Institute	Ivonne Fetchenhuer, Optometry student from the University of Applied sciences in Berlin, Germany on Practical Training Semester
2004-2005	Schepens Eye Research Institute	Matthew Fullerton, Intern, undergraduate student from Department of Computer Science, University of York, UK. MSc student from Department of Electronics, University of York, UK. Currently Scientific Worker (PhD Candidate), Department for Traffic Technology (http://www.vt.bv.tum.de/), Institute for Transportation, Faculty of Civil Engineering and Surveying. Technische Universität München, Germany.
2005	Schepens Eye Research Institute	Katherine Wagner, Summer intern from Department of Computer Science, University of York, UK
2007-	Schepens Eye Research Institute	Amy Doherty, post bachelor trainee (NEI), Schepens Eye Research Institute.
2008	Schepens Eye Research Institute	Tim McIvor, Co Op psychology student Northeastern University
2008	Schepens Eye Research Institute	Stephanie Murray, Co Op psychology student Northeastern University.
2009	Schepens Eye Research Institute	Sarah Kark, Co Op psychology student Northeastern University.
2011	Schepens Eye Research Institute	Matthew Straight, Co Op psychology student Northeastern University.
2011	Schepens Eye Research Institute	Junxiang Chen, Co Op Computer Science student Northeastern University

Formally Supervised Trainees

- 1990-1991 Schepens Eye Research
Fabrice Moulène, MS, Intern as part of Master training. Currently International Product Manager, Digital Radiography, General X-Ray, Philips Medical Systems DM, Hamburg Germany.
- 1993 - 1995 Northeastern University
Elisabeth Fine, PhD, Department of Psychology, Northeastern University. Research supervision and primary member, PhD Committee, Dissertation research was carried out in my lab. Dissertation title: “Reading Dynamically Displayed Text with Visual Impairment”.
- 2001 Tufts University
Dan S Landmann, MD, MSc thesis in the MS/MD program. Currently, Ophthalmologist
- 2000-2002 New England College of Optometry
Bonita Wong, MA, Research Honors Program trainee, Currently scientist at Alcon Labs
- 2003 – 2005 Bridget Hendricks, OD, MSc, Member of the MSc committee, Dissertation title: “Compensation for the degraded retinal image within the human visual system: An investigation of contrast constancy for simple and complex stimuli”. Currently Assistant Professor, New England College of Optometry.
- 2004 - 2005 SchepensEye Research Institute
Rocio Alcalá- Quintana, PhD, PhD Student from Departamento de Metodología Facultad de Psicología Universidad Complutense, Madrid, Spain. (Conducted part of thesis work in my lab. Currently faculty member at the same university
- 2007-2008 Matthew Fullerton, MSc, Master student Department of Electronics, University of York, UK. Dissertation title: “. Currently Scientific Worker (PhD Candidate), Department for Traffic Technology (<http://www.vt.bv.tum.de/>), Institute for Transportation, Faculty of Civil Engineering and Surveying. Technische Universität München, Germany
- 2007- New England College of Optometry
Nicole Ross, OD, Masters Student (co –supervise with Alex Bowers). Currently Resident in Ohio State School of Optometry
- 2008 SchepensEye Research Institute
Vincent Ciaccio, MA, Pre doctoral trainee, Schepens Eye Research Institute. Currently PhD Student, Rutgers University.
- 2009- New England College of Optometry
Mirage Shah, Masters Student
- 2010- New England College of Optometry
Jenny Chen, Master Student (co –supervise with Alex Bowers)

Formal Teaching of Peers (e.g., CME and other continuing education courses)

- 1984 Scanning laser ophthalmoscopy course. 62nd Annual Vision Care Congress of the New England Council of Optometrists, Boston, MA, March 11. (with G Timberlake)
- 1985 Clinical evaluation of the retinal nerve fiber layer. Optometry Update Seminar, New England College of Optometry, Boston, MA, October 7.

- 1986 Nerve fiber layer defects and methods of examination. Glaucoma Update - Optometric Continuing Education Seminar, The Massachusetts Society of Optometrists, Waltham, MA, February 12.
- 1986 Optometric applications of circular polarizers. 64th Annual Vision Care Congress of the New England Council of Optometrists, Boston, MA, March 8.
- 1986 (a) Scanning laser ophthalmoscopy, (b) Low vision: Prescribing for near, (c) Evaluation of the retinal nerve fiber layer, (d) High-tech fundus imaging techniques. Optifair South East, Miami Beach, FL, January 10-11.
- 1987 (a) Scanning laser ophthalmoscopy, (b) Low vision: Prescribing for near, (c) Evaluation of the retinal nerve fiber layer, (d) High-tech fundus imaging techniques. Optifair '87, New York, NY, March 30-31.
- 1989 (a) High-tech fundus imaging techniques, (b) Low vision: Prescribing for near, (c) Evaluation of the retinal nerve fiber layer. School of Optometry, Continuing Education Program, University of Waterloo, Waterloo, Canada, May 30-31.
- 1992 Recent advances in low vision technology. New England Eye Center, Westin Hotel, Boston, MA, April 9.
- 1992 Clinical evaluation of the retinal nerve fiber layer. 71st Annual Eye Care Congress of the New England Council of Optometrists, Boston, MA, March 12.
- 1992 Recent advances in low research technology. 71st Annual Eye Care Congress of the New England Council of Optometrists, Boston, MA, March 12.
- 1993 Spatial Vision Models and Displays. SID '93, Society for Information Display International Symposium, Seminar and Exhibition, Seattle, WA, May 21.
- 1993 Recent advances in low research technology: clinical perspectives. The Ellerbrock Program, Annual Meeting of the American Academy of Optometry, Boston, MA, December 10.
- 1993 Vision Models for Simulations and Image Quality Metrics. SPIE Visual Communications and Image Processing '94, Chicago, IL, September 25.
- 1994 Recent advances in low research technology: clinical perspectives. The Ellerbrock Program, Annual Meeting of the American Academy of Optometry, San Diego, CA, December 9.
- 1995 Recent advances in low research technology: clinical perspectives. The Ellerbrock Program, Annual Meeting of the American Academy of Optometry, New Orleans, LA, December 8.
- 1996 Visual, perceptual, and optometric issues with head-mounted displays (HMD). SID '96, Society for Information Display International Symposium, Seminar and Exhibition, San Diego CA, May 13.
- 1999 Prism treatment for hemianopia. The Ellerbrock Program, Annual Meeting of the American Academy of Optometry, Seattle, WA, December 9.
- 2000 Optometric issues with head mounted display. The Ellerbrock Program, Annual Meeting of the American Academy of Optometry, Orlando FL, December 9.
- 2000 Prism treatment for hemianopia. The Ellerbrock Program, Annual Meeting of the American Academy of Optometry, Orlando FL, December 7.
- 2002 Prism treatment for hemianopia. The Ellerbrock Program, Annual Meeting of the American Academy of Optometry, San Diego CA, December 15.

- 2003 (a) Prism Treatment for Hemianopia. (b) Visual and Optometric Issues with Head Mounted Displays. Israel Council of Optometrists, National Conference, Tel-Aviv, Israel, Feb. 10.
- 2003 Prism Treatment for Hemianopia and Their Use in Driving. Low Vision In Service Training, Vermont Association for the Blind and Visually Impaired, White River Jct., VT, Oct. 1.
- 2003 (a) Prism Treatment for Hemianopia. (b) Multiplexing in Low Vision Devices. Mary T. Adams Educational Seminar, Kansas Association for the Blind and Visually Impaired, Topeka, KS, Oct.17.
- 2004 Optical Advantages and Limitations of the IMT, Eye-Sight 20/20, Framingham, MA , Jan. 11.
- 2004 Prism Correction for Hemianopia: implications for driving, Optometry Seminar, VA Medical Center, Boston, MA, Feb. 20.
- 2004 Driving with Impaired Vision, Annual conference of the New England College of Occupational and Environmental Medicine, Bedford MA, Dec. 2.
- 2004 (a) What You Should Know About Low Vision Telescopes. (b) Prism Treatment for Hemianopia. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, Tampa, FL. Dec. 9 – 12.
- 2005 New Understandings in Vision Rehabilitation – a full day seminar. 1) Vision multiplexing – a novel approach to low vision device development (1hr). 2) Driving with low vision: who, where, when, how, and why 1(hr). 3) Prism correction for hemianopia past present and future (1.5hr). 4) Near peripheral vision reorganization in macular degeneration (1hr). 5) Bioptic basics and beyond (1.5hr). Vision Center of Central Ohio. Columbus, OH. Oct. 7.
- 2005 Driving with low vision: who, where, when, how, and why. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, San Diego, CA. Dec. 9.
- 2006 a) Near-Peripheral Vision Reorganization in Macular Degeneration. b) Bioptic Telescopes: The Past, Future, and Using Them Right Now (2 hrs). c) Driving with Low Vision: who, where, when. Israel Council of Optometrists, National Conference, Tel-Aviv, Israel, Mar. 19-21.
- 2007 Prism Treatments for Hemianopia. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, Tampa, FL. Oct. 25.
- 2008 Low Vision Rehabilitation 1) Driving with Low Vision: Who, where, when, how, and why. 2) Fitting Peripheral Prisms for patients with hemianopia. 3) Implantable Miniature Telescope: Advantage, limitations, mode of use, and clinical results. Massachusetts Society of Optometrists 2008 continuing education program. Clark University, Framingham MA, Feb 13.
- 2008 Fitting Peripheral Prisms for Hemianopia, a workshop, Vision 2008 - The 9th International Conference on Low Vision, Montreal Canada, July 7.
- 2008 Driving with low vision. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, Anaheim, CA. Oct. 25
- 2008 Fitting Peripheral Prisms for Hemianopia. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, Anaheim, CA. Oct. 24
- 2009 Whole day workshop on Contrast Perception and Image Quality Measures, presented with Alessandro Rizzi (Università degli Studi di Milano) at the Norwegian Color Research Laboratory at Gjøvik University, Gjøvik , Norway, June 18
- 2009 Fitting Peripheral Prisms for Hemianopia. A 3 hour hands-on workshop, Envision 09 Conference, San Antonio, TX, Sept. 9

- 2009 Implantable Miniature Telescope: Advantage, limitations, mode of use. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, Orlando, FL. Nov. 11
- 2009 Fitting Peripheral Prisms for Hemianopia, a workshop. . Lectures and Workshops program for the American Academy of Optometry Annual Meeting, Orlando, FL. Nov. 12
- 2010 Fitting Peripheral Prisms for Hemianopia: A Workshop. EIVOC 2010, Chennai, India. Aug. 13.
- 2010 Implantable Miniature Telescope: Advantage, limitations, mode of use. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, San Francisco, CA. Nov.19
- 2010 Fitting Peripheral Prisms for Hemianopia. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, San Francisco, CA. Nov. 20
- 2011 Fitting Peripheral Prisms for Hemianopia - Workshop. VA Medical Center Tampa, FL, Jan. 6
- 2011 Fitting Peripheral Prisms for Hemianopia - Workshop. 2 sessions. Syn og STROKE, conference, Copenhagen, Denmark, April 28
- 2011 Fitting Peripheral Prisms for Hemianopia - Workshop. Colloque 2.0 Readaptation - Aides techniques, St-Hyacinthe, Quebec, Canada, May 13
- 2011 Fitting Peripheral Prisms for Hemianopia. Lectures and Workshops program for the American Academy of Optometry Annual Meeting, Boston MA. Oct. 12

Local Invited Presentations

- 1986 Clinical evaluation of the retinal nerve fiber layer. Current Development in Optometry Program, New England College of Optometry, Boston, MA, January 27.
- 1986 Clinical evaluation of the retinal nerve fiber layer. Department of Ophthalmology Rounds, Boston University School of Medicine, May 14.
- 1989 Image enhancement for the visually impaired: from basics to applications. New England College of Optometry, Boston, MA, September 12.
- 1991 Simulating normal and low vision. CDSP Seminar, Center for Communications and Digital Signal Processing, Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, May 23.
- 1998 Using peripheral diplopia (confusion) to treat hemianopia. Vision Sciences Colloquium. Harvard Department of Psychology, Cambridge, MA, November 5.
- 2003 Prism Work for Hemianopia, MEEI, Vision Rehabilitation Center, Jan 16.
- 2005 Vision Multiplexing: An Engineering Approach to Vision Rehabilitation. Harvard Medical School, Department of Ophthalmology Annual Meeting, Boston, MA, June 17.
- 2005 Vision Multiplexing: An Engineering Approach to Vision Rehabilitation. Harvard Medical School, Department of Ophthalmology Annual Meeting, Boston, MA, June 17.
- 2008 Vision Under High Frequency Vibrations: Continuous And Intermittent Displays. Vestibular Seminar, MEEI, Boston, MA, Jan. 7
- 2009 Optics of the Boston Keratoprosthesis. Kpro Luncheon Seminar. MEEI. Boston MA Feb 3

Report of Regional, National and International Invited Teaching and Presentations

Invited Presentations and Courses

Regional

- 1987 Nerve fiber layer evaluation and image processing. Department of Brain and Cognitive Sciences, MIT, Cambridge, MA, March 22.
- 1990 Computer measurements of drusen changes. International Scientific Meeting on Age-Related Macular Degeneration, Williamstown, MA, September 8.
- 1992 High Tech Fundus Imaging, NEWENCO Residency-Fellowship Conference, West Roxbury VA Medical Center, West Roxbury, MA, July 23.
- 1995 Visual rehabilitation in age-related macular degeneration, in a symposium on ARM at the Schepens International Meeting in Mexico City, Mexico, March 4.
- 2001 Novel prism treatment for hemianopia. The Tufts/New England Medical Center Neuroscience Grand Rounds Lecture. June 21.
- 2003 Vision Multiplexing: A design principle for enhancing low vision. Brain and Cognitive Sciences, Vision Seminar Series, MIT, Cambridge MA, Feb 21.
- 2003 Prism Treatment for Hemianopia. Stroke Seminar, Mass General Hospital, Department of Neurology, Boston MA, Mar 12.
- 2003 Biomedical Engineering and Low Vision. National Eye Institute Seminar on Research Opportunities in Low Vision, Boston MA, June 16.
- 2003 Getting Access to Patients: Possible, but not easy. National Eye Institute Seminar on Research Opportunities in Low Vision, Boston MA, June 16.
- 2003 Prism Treatment for Hemianopia. Geriatric Research, Education and Clinical Center (GRECC) Seminar, VA Boston Healthcare System, Boston MA, Sept 15.
- 2004 Optometric and Engineering Concepts Combined in the Design of Low Vision Devices. Research Lecture Series, New England College of Optometry, Boston MA, April 15.
- 2004 Vision Multiplexing in the Design of Low Vision Devices. Transportation Center Seminar, University of Rhode Island, Kingston RI, Sept. 17.
- 2004 Optometric and Engineering Concepts Combined in the Design of Low Vision Devices. Alumni Association of the Technion I.I.T. (New England Chapter) Holidays meeting, Burlington, MA, Dec. 18.
- 2005 Vision Multiplexing – An Engineering Approach to Vision Rehabilitation. Physical Medicine and Rehabilitation, New England Medical Center hospitals, Boston, MA, Jan. 12.
- 2005 Combining Engineering and Optometric Concepts in the Design of Devices for the Visually Impaired. Spring 2005 Colloquium Series, Center for Adaptive Systems, Department of Cognitive and Neural Systems, Boston University, Boston, MA. Feb. 11.
- 2005 Near-Peripheral Vision Reorganization in Macular Degeneration. Windows into the dynamic brain: A mini-Symposium. Brain and Vision Research Laboratory, Department of Biomedical Engineering, Boston University, Boston, MA. May 13.
- 2005 Combining Engineering and Optometric Concepts in the Design of Devices for the Visually Impaired. Keynote Speaker, Assistive Technology Design Fair 2005, Francis College of Engineering, University of Massachusetts, Lowell, MA. May 21.
- 2005 Vision Multiplexing for Low Vision Devices. Strategies and Solutions: The Changing Landscape of Military Ophthalmology, Boston, MA. Sept. 29.
- 2008 Prism treatment for hemianopia. Third Biannual Military Vision Research Symposium: Traumatic Eye and Brain Injury. Boston MA Sept 18
- 2009 Personality and Tolerance of Blur, the 40th International Society of Contact Lens Specialists meeting, Boston, MA, Sept. 13
- 2011 Driving with Low Vision: an Update, vision sciences colloquium series, Department of

Psychology, Boston University, Boston MA Mar. 30

- 2011 Peripheral Prisms for Hemianopia: The Strabismus Connection, Children's Hospital Boston, Department of Ophthalmology Morning Conference, Boston, MA, Aug. 3
- 2011 Peripheral Prisms Treatments for Hemianopia, Neuroscience Grand Rounds, Tufts Medical Center, Boston, MA Oct. 27

National

- 1982 Control of eye movements with peripheral vision. Joint Symposium of Peripheral Visual Function at the Meeting of the American Academy of Optometry, Philadelphia, PA, December 8.
- 1983 Control of eye movement with peripheral vision: Implications for the training of eccentric viewing in low vision patients. Faculty Seminars Series, College of Optometry, University of Houston, February 17.
- 1984 GT Timberlake and E Peli. Scanning laser ophthalmoscopy. Symposium on Vision Training in Low Vision: Diagnosis Precedes Training, Annual Meeting of the American Academy of Optometry, St Louis, MO.
- 1985 Computerized image processing – ophthalmic applications. Faculty Research Seminar, Pennsylvania College of Optometry, Philadelphia, PA, November 6.
- 1986 Digital image processing of fundus photographs. Wilmer Institute of Ophthalmology, Johns Hopkins University School of Medicine, Baltimore, MD, February 19.
- 1986 Digital processing of fundus images. National Eye Institute Grand Rounds, Bethesda, MD, May 23.
- 1989 Image enhancement for the visually impaired: from basics to applications. Oxyopia Seminar, School of Optometry, University of California, Berkeley, October 20.
- 1990 Image enhancement for the visually impaired. Smith-Kettlewell Colloquia, San Francisco, CA, February 23.
- 1991 Simulating normal and low vision. US Army, Center for Night Vision and Electro-Optics, Ft Belvoir, VA, July 30.
- 1992 Aspects of simulating normal and low vision. State University of Arizona, Tempe, AZ, April 7.
- 1992 Aspects of simulating normal and low vision. Williams Air Force Base, AZ, April 8.
- 1992 Enhancement and measurement of fundus images, imaging in Ophthalmology Symposium, University of Texas, Health Science Center, San Antonio, TX, June 26.
- 1993 Simulations as a guide for image quality metrics. NASA Ames Research Center, Moffett Field, CA, January 11.
- 1993 Simulating central and peripheral vision. The First Arthur R. Menendez, PhD, Applied Vision Research Memorial Lecture, Brooks Air Force Base, TX, October 18.
- 1994 Enhancement of retinal images: A critical evaluation. In "Digital Imaging in Ophthalmology" a Special Sunday Symposium, ARVO Annual Meeting, Sarasota FL, May 1.
- 1995 Image Processing for the visually impaired: the NASA involvement. Computational Human Engineering Office, NASA, Ames Research Center, Moffett Field CA, January 31.
- 1996 Visual and Optometric considerations in the design of binocular head-mounted display.

- Symposium on Optical Design for Visual Instrumentation. OSA annual meeting, Rochester, NY.
- 1998 Sensor fusion for human vision. Representing NASA, Ames Research Center, at the Synthetic Vision Workshop 2, NASA, Langley, VA, January 29.
- 1998 Prism correction for hemianopia, a method that actually works. Lion Vision Center, The Johns Hopkins Wilmer Eye Institute. Baltimore, MD, August 20.
- 1998 Contrast in images and the simulation of image appearance. Human Factors Lab, Eastman Kodak Company, Rochester, NY, November 10.
- 1998 Image enhancement for the visually impaired: from basics to applications. Colloquium Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, November 19.
- 1998 Prism correction for hemianopia. Vision Seminar, Department of Psychology, University of Minnesota, Minneapolis, MN, November 23.
- 1999 Prism correction for hemianopia that actually works. The Smith –Kettlewell Colloquium, San Francisco, CA, January 29.
- 1999 Vision multiplexing, an engineering approach to vision rehabilitation. HMD SIG meeting at ARVO, May.
- 1999 Multiplexing, an engineering approach to low-vision rehabilitation. “Virtual Lunch” talk at NASA Ames Research Center, Moffet Field CA, May 24.
- 2000 Vision under high frequency (60Hz) vibrations: continuous and intermittent displays. ARH seminar, NASA Ames Research Ctr., Moffet Field CA, September 20.
- 2001 Vision during saccades. Vision Seminar, NASA Ames Research Ctr., Moffet Field CA, June 7.
- 2001 The low vision driver. Invited faculty at The Eye and the Auto. Detroit. MI. June 16.
- 2002 Aids for Driving with Low Vision, Human Factors in Transportation 35th Annual Workshop, Seeing is Believing: Vision, Cognition and Driving Among Seniors, Washington DC, January 13.
- 2002 Multiplexing as a new paradigm for vision rehabilitation. University of Alabama at Birmingham, Callahan Eye Foundation Hospital at UAB, Birmingham AL, April 25.
- 2002 Vision multiplexing a new design concept for low vision technology. Center for Visual Science 23rd Symposium “Engineering the Eye” Rochester NY June 13-15.
- 2003 Vision Multiplexing with Bioptic Telescopes and Monocular HMDs: Implications for applications in aviation. Vision Seminar, NASA Ames Research Ctr., Moffet Field CA, Jan 22.
- 2003 Visual Aids for Driving with Impaired Vision, Enhancing Older Driver Safety and Performance, International Conference on Aging, Disability, and Independence, Washington DC, December 5.
- 2004 Biomedical Engineering and Low Vision. National Eye Institute Seminar on Research Opportunities in Low Vision, Birmingham AL, Feb. 26.
- 2004 Prism Treatment for Hemianopia. Keynote lecture at the at the 13th Annual Conference of the Neuro-Optometric Rehabilitation Association, International (NORA), Boston, MA, March 27.
- 2004 Optometric and Engineering Concepts Combined in the Design of Low Vision Devices, Oxyopia Seminar, UC Berkeley, School of Optometry, June 3.
- 2004 Vision Multiplexing: an engineering approach to visual aids development. The Second Annual Bressler Vision Science Award Symposium, NY Academy of Sciences, New York,

- NY, Sept. 10
- 2004 Vision Multiplexing in the Design of Low Vision Devices. Fall Vision Meeting, OSA, Rochester, NY, Oct. 15.
- 2004 Update on Peripheral Prisms and In-the-Lens Telescope. 2) Recent studies on Low Vision Driving. What's New in Low Vision Symposium, American Academy of Optometry Annual Meeting, Tampa, FL, Dec. 11.
- 2005 Low Vision Devices: Designing does not end with building the first prototype. Developments in Vision Enhancement Technology and Their Evaluation, West Virginia University Eye Institute, Morgantown, WV, June 3.
- 2005 Low Vision Devices: Designing does not end with building the first prototype. Developments in Vision Enhancement Technology and Their Evaluation, West Virginia University Eye Institute, Morgantown, WV, June 3.
- 2005 Image Processing Based Aids for Visually Impaired People. Keynote presentation, 1st IEEE Workshop on Computer Vision Applications for the Visually Impaired, San Diego, CA, June 20.
- 2005 Driving with Low Vision. Invited faculty at The Eye and the Auto. Detroit, MI. June 25
- 2005 Vision multiplexing – A novel approach to low vision device development. Ohio State University, School of Optometry. Columbus, OH. Oct. 6
- 2005 Bioptic Telescopes: The Past, Future, and Using Them Right Now. The William Feinbloom Distinguished Lecture. Envision NY. SUNY College of Optometry, New York, NY, Oct.10.
- 2005 Image Processing Based Aids for People with Vision Impairment. Guest lecture at the BME_670 course, Department of Biomedical Engineering, University of Southern California, Los Angeles, CA. Oct. 13
- 2005 Assessing Visual Aids for Night Blindness. OSA Vision Meeting, University of Arizona, Tucson AZ. Oct. 22
- 2005 Driving with Field Loss: On-Road and Simulator Studies. ARVO/AAO Joint Symposium, Navigating in the 21st Cen^{ury}: Getting from Laboratory to Patient Care, American Academy of Optometry Annual Meeting, San Diego, CA. Dec. 9
- 2006 Near-Peripheral Vision Reorganization in Macular Degeneration. The H. Talmage Dobbs Lectureship in Ophthalmology, Emory Eye Center, Emory School of Medicine, Atlanta, GA. Jan. 13
- 2006 How to assess steering stability in patients with peripheral field loss? Committee on Simulation and Measurement of Vehicle and Operator Performance (AND 30). TRB – Transportation Research Board of the National Academies. Washington DC, Jan. 23
- 2006 Scoring On-Road Performance of Drivers with Vision Impairments. Workshop on Methodological Advances in Studying On-Road Driving Performance and Habits in Older Drivers: Committee on the Safe Mobility of Older Persons (ANB60). TRB – Transportation Research Board of the National Academies. Washington DC, Jan. 23
- 2006 Near-Peripheral Vision Reorganization in Macular Degeneration: Psychophysics and fMRI. Envision 06 conference, Kansas City, Sept. 22
- 2006 Driving with Impaired Vision: Who Can Drive, Where, and Why? Envision 06 conference, Kansas City, Sept. 23
- 2006 Image Enhancement as visual aid for People with Vision Impairment. Keynote talk, 2nd International Symposium on Visual Computing (ISVC06), Lake Tahoe, NV. Nov. 6
- 2007 Augmented vision head-mounted systems for vision impairments. SID International Symposium, Society for Information Display, San Francisco, CA, May 23

- 2007 Implantable Miniature Telescope – Advantage Limitations and Mode of Use. Envision 07 conference, Kansas City, Aug.10
- 2007 Peripheral Prism Treatment for Patients With Hemianopia. Envision 07 conference, Kansas City, Aug.10
- 2007 Vision multiplexing: An optical engineering concept for low-vision aids. SPIE Conference on Current Developments in Lens Design and Optical Engineering VIII, San-Diego, CA, Aug. 27
- 2007 Electro-Optical Vision Multiplexing Devices for Vision Impairments. Workshop on Computer Vision Applications for the Visually Impaired. OSA Fall Vision Meeting, Berkeley, CA, Sept. 18
- 2007 Implantable Miniature Telescope – Advantage Limitations and Mode of Use. Grand rounds guest speaker, 2007-2008 Stanford Ophthalmology Lecture Series, Sept.18
- 2008 Vision Multiplexing: A Novel Approach to Low Vision Aids, Vistakon Vision Institute, Johnson & Johnson Vision Care, Inc., Jacksonville FL, Feb. 11
- 2008 Vision Enhancement by Image Processing, Keynote speaker Sixth Annual USC Vision Symposium, University of Southern California, Los Angeles, CA, Apr. 15
- 2008 Technologies in service of people with impaired vision, Special Session on Emerging Technologies – Tools for the Future, Sponsored by the National Science Foundation at the Rehabilitation Engineering & Assistive Technology Society of North America (RESNA) 2008 Annual Conference, Washington DC, June 28
- 2008 Advances in vision rehabilitation for AMD. Advances in Macular Degeneration Course, University of Pittsburgh School of Medicine, Pittsburgh PA, Oct. 3
- 2009 Hemianopia, Prisms, and Driving. Schnurmacher Institute for Vision Research Seminar, SUNY Optometry, NYC, NY Feb 27.
- 2009 Peripheral Prisms for Hemianopia: The long way from concept to market. In a symposium titled “From the Laboratory to the Clinic: Translating Low Vision Research and Development into Practice” Envision 09 conference, San Antonio, TX. Sept. 11
- 2009 Driving with visual field loss: Evaluation in a simulator, The Eye and The Auto 09, Troy MI, Sept. 16
- 2009 Visual field expansion devices, Symposium on Visual Field Loss in Low Vision: Measurement, Clinical Implications & Interventions, Annual meeting of the American Academy of Optometry, Orlando, FL, Nov. 11
- 2010 Vision Multiplexing as a Design Principle for Visual Aids. University of Rochester, Faculty Seminar Rochester, NY, Apr. 19
- 2010 Vision Multiplexing Devices for Vision Impairments. Google Tech Talk, Cambridge MA, June 23
- 2010 Vision Multiplexing as a Design Principle for Low Vision Devices. Computational Optical Sensing and Imaging (COSI) Seminar Series. University of Colorado at Boulder, AZ, Nov. 15
- 2010 Vision Multiplexing as a Design Principle for Low Vision Devices. Imaging Science Seminar, Chester F. Carlson Center for Imaging Science, Rochester Institute of Technology, Rochester, NY. Dec. 8
- 2011 Driving with Hemianopia. DoD/VA Vision Center of Excellence Consensus Conference at the Blinded Veterans Association Annual Meeting, Las Vegas, Nevada. Aug 18

- 2011 Driving with Central Field Loss. Invited faculty at The Eye and the Auto. Detroit, MI. Sept. 13
- 2011 Driving with Hemianopia. OSA Fall Vision Meeting, Seattle, WA, Sept. 18

International

- 1983 Mapping residual retinal function with the scanning laser ophthalmoscope. Vision Research Club, Department of Electrical Engineering, Technion (IIT), Haifa, Israel, October 17.
- 1983 Recent developments in clinical eye research in Boston. Department of Ophthalmology, Belinson Medical Center, Petah-Tikva, Israel, October 15.
- 1984 Mapping residual retinal function with the scanning laser ophthalmoscope. University of Waterloo School of Optometry, Waterloo, Canada, February 16.
- 1987 High-technology fundus imaging. Grand Rounds, Department of Ophthalmology, Hadassah University Hospital, Jerusalem, Israel, February 26.
- 1987 Image processing and visual models. Julius Silver Institute of Biomedical Engineering Sciences. Technion (IIT), Haifa, Israel, March 3.
- 1990 Contrast in complex images. Department of Electrical Engineering and Julius Silver Institute of Biomedical Engineering Sciences, Technion, Haifa, Israel, July 10.
- 1990 Image invariance with change of distance. Department of Human Factors Engineering Israeli Air Force, Israel, July 11.
- 1993 Video image and text enhancement for the visually impaired. Institute for Perception Research, Eindhoven, The Netherlands, July 5.
- 1995 Image enhancement for the Visually Impaired, and Computerized processing of retinal images. In "Non Invasive Optical Methods In Vision And Ophthalmology" an international course given by the Fundación Ramon Areces. Madrid, Spain, March 6-8.
- 1996 Fiber Optic reading Magnifier for the visually impaired. Institute of Ophthalmology, London, United Kingdom, July 2.
- 1996 Safety and Comfort Issues with Head-Mounted Displays. Symposium on Human Factors at the Workshop on 3D Display Technologies and Human Factors, The Third International Display Workshops IDW' 96, Kobe, Japan. November 28.
- 1998 Low Vision Research at the Schepens Eye Research Institute, Ophthalmologia Belgica '98 conference, Brussels, Belgium, November 28.
- 1999 Validation and verification of a model for central and peripheral vision. NATO invitational workshop on Camouflage, Concealment and Deception (CCD), Utrecht, The Netherlands, June 23.
- 1999 Visual edges detection: how and why. Vision Seminar at McGill Vision Research, McGill University, Montreal, Canada, October 29.
- 1999 Vision Multiplexing: a novel approach to low-vision rehabilitation. Ecole d'optométrie, Université de Montréal, Montreal, Canada, November 1.
- 2000 Edge Detection in the visual system. The Wizemann Institute, Israel, March 19.
- 2000 Edge Detection in the visual system. The Silver Institute for Biomedical Engineering, Technion, IIT, Israel, March 24.
- 2000 Vision multiplexing for visual rehabilitation: from basic research to applications and back.

- The Stichting blindenpenning Lecture at the ECVP 2000 (annual meeting of the European Conference on Visual Perception), Gronigen, The Netherlands, August 31.
- 2000 Multiplexing – A novel approach to low-vision devices. The keynote lecture at the EuroSight 2000, the European Low Vision conference. Veldhoven, The Netherlands, September 4.
- 2001 Image multiplexing for vision rehabilitation. Symposium de réadaptation en ophtalmologie, Entre canne longue et guidance par satellite Visual teeficit ModernVisualla société Modern, Geneva, Switzerland. October 18.
- 2002 Vision Multiplexing Vision Rehabilitation Devices- function and form. XV International Congress of Eye Research, Genève, Switzerland, Oct.10
- 2002 New approaches in the management of low vision. Update in the Management of Glaucoma conference Le service universitaire d'ophtalmologie de Genève Switzerland, Oct. 11
- 2002 Vision Multiplexing: A New Engineering Approach to Low Vision Device Development. 2) Driving with Low Vision in the USA National conference on Low Vision, Kibutz Ga'ash, Israel, Oct. 15.
- 2003 Vision Multiplexing: A Novel Engineering Approach to Low Vision Device Development. Bioengineering Seminar, The Silver Institute for Biomedical Engineering, Technion, IIT, Israel, Feb. 9.
- 2003 Vision Multiplexing: An Engineering Approach to Low Vision. Optometry Seminar, Bar Ilan University, Tel-Aviv, Israel, Feb. 11.
- 2003 Prism Treatment for Hemianopia. Department of Ophthalmology Seminar, Gent University, Gent, Belgium, Feb 13.
- 2003 Prism Treatment for Hemianopia. Neuropsychology and Gerontology Seminar, Academic Hospital, Groningen, the Netherlands, Feb 14.
- 2003 Novel Low Vision Devices: Function and Form. IV Conference on Optometry & Contactology – Región de Murcia, Spain, Mar. 30.
- 2004 Driving with BiOptic Telescopes: social, legal, and technical considerations. The Kok van Alphen keynote lecture at the annual meeting of the Dutch Ophthalmologic Society, Amsterdam, March 24.
- 2004 Optometric and Engineering Concepts Combined in the Design of Low Vision Devices. The Institute of Ophthalmology, London, UK, June 16.
- 2004 Functional Fields of Bioptic Telescopes: Implications for driving. International BiOptic Driving Conference, London, UK, June 19.
- 2005 Combining Engineering and Optometric Concepts in the Design of Devices for the Visually Impaired. The Eliahu I. And Joyce Jury Award Lecture, Department of Electrical Engineering at the Technion-Israel Institute of Technology, Haifa, Israel, Apr. 12
- 2007 Near-Peripheral Vision Reorganization in Macular Degeneration: Psychophysics and MRI. Institute of Ophthalmology, University College, London, UK. June 20
- 2007 Visual Science Overview: What we know and what we want to learn. IMT-UK Study Investigator's Meeting, Institute of Ophthalmology, University College, London, UK, June 22
- 2007 Assistive Technologies for Vision Impairments, Department of Electronic Departmental Seminar, York University, York UK, Nov. 19
- 2007 Image Enhancement for Impaired Vision: The Challenge of Evaluation. Guest lectures at the Advanced Media course, Department of Electronic Engineering, York University, York UK, Nov. 20

- 2009 From Contrast to Sensitivity: Vision and image processing. Gjøvik Color Imaging Symposium 2009, Norwegian Color Research Laboratory at Gjøvik University, Gjøvik , Norway, June 19
- 2009 Driving with visual field loss: Simulator studies, Departmental Seminar, Department of Psychology, The University of Hong-Kong
- 2009 Near-Peripheral Vision Reorganization in Macular Degeneration: Psychophysics and fMRI, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, Oct. 8
- 2009 Image enhancement for impaired vision: The challenge of evaluation, Information Science Technology school, Dalian Marine University, Dalian, China, Oct. 12
- 2010 Fitting Prisms for Patients with Hemianopia. Zeist/Bartimeus Institute for the Blind and Visually Impaired, Utrecht, Holland, Jan. 7
- 2010 Assistive Technology for Impaired Vision. The Helmholtz Lecture, Helmholtz Institute, Utrecht, Holland, Jan. 8
- 2010 Binocular Considerations in Fitting Prisms for Hemianopia. School of Optometry, Bar-Ilan University. Tel-Aviv, Israel, Jan.10
- 2010 Assistive Devices for Impaired Vision. The 21st Bobier Lecture, The School of Optometry, University of Waterloo, Waterloo Canada, June 4
- 2010 Vision Multiplexing Devices for Vision Rehabilitation. EIVOC 2010, Chennai, India. Aug. 12.
- 2010 Fitting Peripheral Prisms for Patients with Hemianopia. The opening Keynote lecture, The First European Congress on Visual Impairment, Valladolid, Spain, Oct. 22
- 2011 Prisms treatments for hemianopia. Syn og STROKE Conference, Copenhagen Denmark, April 28
- 2011 Driving with Impaired Vision: Who can drive, where, and why? Keynote lecture, Colloque 2.0 Readaptation – Aides techniques, St-Hyacinthe, Quebec, Canada, May 13
- 2011 Vision Multiplexing: a Design Principle for Low Vision Devices. Information and Communication Seminar, EPFL, Lausanne, Switzerland, Sept. 21
- 2011 Implanted Telescopes for Low Vision. Déficit Visuel et et réadaptation: Dimensions, affectives, sociales, neuroscientifiques et technologiques. Hôpitaux Universitaires de Genève (HUG), Geneva Switzerland, Sept. 23

Report of Clinical Activities and Innovations

Current Licensure and Certification

- 1983- Massachusetts License Registration (Optometry #3080)
- 1991- Massachusetts Certification for Use of Pharmaceutical Agents for Diagnostic Purposes
- 2000- Massachusetts Certification for Use of Therapeutic Pharmaceutical Agents

Practice Activities

- | | | | |
|--------|----------------------------|--|--|
| 1983 - | Vision Rehabilitation Care | New England Medical Center
(Now Tufts-Medical Center),
Boston, MA. | 1 half day session per week, 4
to 6 patients per session. |
|--------|----------------------------|--|--|

Clinical Innovations

Developed a number of innovative clinical techniques, including the use of circular polarizers to improve visibility of the corneal endothelium and fundus images; an early developer of image processing of retinal images; a variety of low vision aids, including the fiberoptics reading magnifier; novel optical techniques for treatment of hemianopia and tunnel vision; stereotroscope and prisms for the treatment of bitemporal hemianopia; and the use of head-mounted display and image enhancement in low vision care. Description of torsional strabismus with ARC as an adaptation to homonymous hemianopia.

Report of Technological and Other Scientific Innovations

Waltuck MH, McKnight RN, Peli E. Visual function tester with binocular vision testing. An instrument based on this patent (Binocular Vision System BVS™) was manufactured and distributed by Mentor O & O, Norwell, MA.	US patent 5,026,151. 1991 Jun. 25
Peli E. Halftone imaging apparatus and method.	US patent 5,109,282. 1992 Apr. 28
Peli E. Fiber optic reading magnifiers.	US patent 5,511,141. 1996 April 23
Peli E. Fiber optic reading magnifiers. Magnifiers based on these patents were produced and distributed by TaperVision, Inc.	US patent 5,600,751. 1997 Feb. 4
Peli E. Wide-band image enhancement.	US patent 6,611,618. 2003 Aug 26.
Peli E. and Vargas FM. Bioptic telescope system embedded into a spectacle lens.	US patent No. 6,775,060. 2004 Aug. 10
Peli E. Wide-band image enhancement.	US patent 7,280,704. 2007 Oct. 9 (A continuation of US patent 6,611,618).
Peli E. Peripheral Field Expansion Device. Prism glasses based on this patent are manufactured and distributed by Chadwick Optical Inc.	US patent 7,374,284. 2008 May 20
Peli E. and Vargas FM. Bioptic telescope system embedded into a spectacle lens.	Japanese Patent No. 4,332,424. 2009 June 26
Fu X, Luo G and Peli E., Gaze tracking system for drivers with low vision 发明专利：低视力驾驶员的视线跟踪校准系统，专利号 发明人：付先平、罗罡、Eliezer Peli	Chinese Patent No. ZL200910220019.6. June 23, 2011
Fu X, Luo G and Peli E., Calibration method for tracking of bioptic telescope aiming point 发明专利：跟踪助视器望远镜瞄点的校准装置，专利号：发明 人：付先平、罗罡、Eliezer Peli	Chinese Patent No. ZL200910220017.7. June 20, 2011

Report of Education of Patients and Service to the Community

Activities

- | | |
|--------|--|
| 1999 | Mission Volunteer, provided eye exams and spectacles to about 700 patients during service trip to Liberia, Costa Rica with Volunteer Optometrists in Service of Humanity (VOSH), Alabama Chapter |
| 2001 | Mission Volunteer, provided eye exams and spectacles to patients during service trip to Costa Rica with Volunteer Optometrists in Service of Humanity (VOSH), Alabama Chapter |
| 2006 | Mission volunteer, VERAS , Vision, educación, Rendimiento, Aprendizaje y Sostenibilidad, UNESCO/VOSH project in Nicaragua to detect, diagnose and treat vision problems in preschool and first grade children |
| 2008 - | Member of the Board of Directors of the American Friends of NAMAG (AFON) – Association of AMD patients in Israel. http://www.namag.org.il/ |

Educational Material for Patients and the Lay Community

Books, monographs, articles and presentations in other media

Educational material or curricula developed for non-professional students

Patient educational material

“Hope in Sight” (2003) An educational **video** for patients with Age Related Macular Degeneration and their families (30 min), Beth Dugan, producer, Eli Peli, co-investigator and senior consultant (Winner of the 2003 Telly Award)

Recognition

Report of Scholarship

Publications

Peer reviewed publications in print or other media

1. Zeevi YY, Peli E, Stark L. A study of eccentric fixation with secondary visual feedback. J Opt Soc Am 1979; 69: 669-675.
2. Zeevi YY, Peli E. Latency of peripheral saccades. J Opt Soc Am 1979; 69: 1274-1279.
3. Peli E. Control of vertically polarized glare. J Am Optom Assoc 1983; 54: 447-450.
4. Peli E. Normal stereo acuity despite anisometropic amblyopia. J Am Optom Assoc 1983; 5: 919-921.
5. Peli E, McCormack GL. Dynamics of cover test eye movements. Am J Optom Physiol Opt 1983; 60: 712-724.
6. Scheiman MM, Peli E, Libassi D. Auditory biofeedback used to enhance convergence insufficiency therapy. J Am Optom Assoc 1983; 54: 1001-1003.
7. Peli E. Functional difficulties due to traumatic anisocoria. Am J Optom Physiol Opt 1984; 61: 548-550.
8. Peli E, Peli T. Image enhancement for the visually impaired. Opt Eng 1984; 23(Pt 1): 47-51.
9. Zeevi YY, Peli E. Smooth eye movement control with secondary visual feedback J Opt Soc Am A 1984; 61: 628-634.
10. Katsumi O, Oguchi Y, Kawara T, Peli E. Effect of contrast on binocular VER. Jpn J Ophthalmol 1984; 28: 401-408.
11. Katsumi O, Peli E, Oguchi Y, Kawara T. Effect of contrast on fusional VEP: a model and experimental results. Am J Optom Physiol Opt 1985; 62: 233-239.
12. Peli E. Circular polarizers enhance visibility of endothelium in specular reflection biomicroscopy. Arch Ophthalmol

- 1985; 103: 670-672.
13. Peli E. Ophthalmic applications of circular polarizers. *J Am Optom Assoc* 1986; 57: 298-302.
 14. Peli E, Hedges T, Schwartz B. Computerized enhancement of retinal nerve fiber layer photographs. *Acta Ophthalmol* 1986; 64: 113-122.
 15. Peli E, Arend L, Timberlake GT. Computerized image enhancement for low vision: new technology with new possibilities. *J Visual Impairment Blindness* 1986; 8: 849-854.
 16. Timberlake GT, Mainster MA, Peli E, Augliere RA, Essock EA, Arend LE. Reading with macular scotoma. I: Retinal location of scotoma and fixation area. *Invest Ophthalmol Vis Sci* 1986; 27: 1137-1147.
 17. Peli E. Control of eye movement with peripheral vision: implication for training of eccentric viewing. *Am J Optom Physiol Opt* 1986; 63: 113-118.
 18. Peli E, McCormack G. Blink vergence in an antimetropic patient. *Am J Optom Physiol Opt* 1986; 63: 981-984.
 19. Peli E, Lahav M. Drusen measurements from fundus photographs using computerized image analysis. *Ophthalmol* 1986; 93: 1575-1580.
 20. Peli E, McInnes T, Hedges T, Hamlin J, Schwartz B. Photography of retinal nerve fiber layer – comparative study. *Acta Ophthalmol* 1987; 65: 71-80.
 21. Peli E. Adaptive enhancement based on visual model. *Opt Eng* 1987; 26: 655-660.
 22. Timberlake GT, Peli E, Essock EA, Augliere RA. Reading with macular scotoma. II: Retinal locus for scanning text. *Invest Ophthalmol Vis Sci* 1987; 28: 1268-1274.
 23. Peli E, Schwartz B. Enhancement of fundus photographs taken through cataracts. *Ophthalmol* 1987; 94 (Suppl.): 10-13.3.
 24. Peli E, Augliere R, Timberlake GT. Feature-based registration of retinal images. *IEEE Trans Medical Imaging* 1987; MI-6: 272-278.
 25. Peli E, McCormack G, Sokol S. Signal-to-noise ratio considerations in the analysis of sweep VEP. *Appl Opt* 1988; 27: 1094-1098.
 26. Fariza E, Jalkh AE, Thomas JV, O'Day T, Peli E, Acosta J. Use of circularly polarized light in fundus and optic disc photography. *Arch Ophthalmol* 1988; 106: 1001-1004.
 27. Peli E, Hedges T, Schwartz B. Computer measurement of retinal nerve fiber layer. *Appl Opt* 1989; 28: 1128-1134.
 28. Peli E, Peli T. Restoration of retinal images obtained through cataracts. *IEEE Trans Med Imaging* 1989; 8: 401-406.
 29. Peli E. Binocular depth reversals despite familiarity cues: an artifact? (Technical comments). *Science* 1990; 249: 565-566.
 30. Peli E. Visual issues in the use of a head mounted monocular display. *Opt Eng* 1990; 29: 883-892.
 31. Peli E. Contrast in complex images. *J Opt Soc Am A* 1990; 7: 2032-2040.
 32. Sokol S, Peli E, Moskowitz A, Reese D. Pursuit eye movements in early and late onset esotropia. *Pediatric Ophthalmol Strabismus* 1991; 28: 82-86.
 33. Peli E. Multiresolution, error-convergence halftone algorithm. *J Opt Soc Am A* 1991; 8: 625-636.
 34. Peli E, Goldstein R, Young G, Trempe CL, Buzney S. Image enhancement for the visually impaired: simulations and experimental results. *Invest Ophthalmol Vis Sci* 1991; 32: 2337-2350.
 35. Peli E, Yang J, Goldstein R, Reeves A. The effect of luminance on suprathreshold contrast perception. *J Opt Soc Am A* 1991; 8: 1352-1359.
 36. Sebag M, Peli E, Lahav M. Drusen changes over time. *Acta Ophthalmol* 1991; 69: 603-610.
 37. Peli E, Yang J, Goldstein R. Image invariance with changes in size: the role of peripheral contrast thresholds. *J Opt Soc Am A* 1991; 8: 1762-1774.
 38. Peli E. Perception and interpretation of high-pass filtered images. *Opt Eng* 1992; 31: 74-81.
 39. Peli E. Limitations of image enhancement for the visually impaired. *Optom Vision Sci* 1992; 6: 15-24.
 40. McCormack G, Peli E, Stone P. Differences in tests of aniseikonia. *Invest Ophthalmol Vis Sci* 1992; 33: 2063-2067.
 41. Peli E. Display nonlinearity in digital image processing for visual communication. *Opt Eng* 1992; 3: 2374-2382.
 42. Peli E, Arend L, Young G, Goldstein R. Contrast sensitivity to patch stimuli: effects of spatial bandwidth and temporal presentation. *Spatial Vision* 1993; 7: 1-14.
 43. Peli E, Lee E, Trempe CL, Buzney S. Image enhancement for the visually impaired: the effects of enhancement on face recognition. *J Opt Soc Am A* 1994; 11: 1929-1939.
 44. Hedges T, Legge R, Peli E, Yardley C. Retinal nerve fiber layer changes and visual field loss in idiopathic intracranial hypertension. *Ophthalmol* 1995; 102: 1242-1247
 45. Peli E. Suprathreshold contrast perception across differences in mean luminance: effects of stimulus size, dichoptic presentation, and length of adaptation. *J Opt Soc Am A* 1995; 12: 817-823.
 46. Fine EM, Peli E. Enhancement of text for the visually impaired. *J Opt Soc Am A* 1995; 12: 1439-1447.
 47. Peli E, Siegmund W. Fiber optic reading magnifier for the visually impaired. *J Opt Soc Am A* 1995; 12: 2274-2285.
 48. Fine EM, Peli E. Scrolled and RSVP text are read at the same rate by the visually impaired. *J Opt Soc Am A* 1995; 12: 2286-2292.

49. Peli E, Fine EM, Labianca AT. Evaluating visual information provided by audio description. *J Visual Impairment Blindness* 1996; 90: 378-385.
50. Peli E. Test of a model of foveal vision by using simulations. *J Opt Soc Am A* 1996; 13: 1131-1138.
51. Hedges TR, Galves RP, Speigelman D, Barbas NR, Peli E, Yardley CJ. Retinal nerve fiber layer abnormalities in Alzheimer's disease. *Acta Ophthalmol Scand* 1996; 74: 271-275.
52. Fine EM, Kirschen MP, Peli E. The necessary field of view to read with an optimal stand magnifier. *J Am Optom Assoc* 1996; 67: 382-389.
53. Fine EM, Peli E. Visually impaired observers require a larger window than normally sighted to read from a scrolled display. *J. Am Optom Assoc* 1996; 67: 390-395.
54. Fine EM, Peli E. The role of context in reading with central field loss. *Optom Vision Sci* 1996; 73: 533-539.
55. Peli E, Arend L, Labianca AT. Contrast perception across changes in luminance and spatial frequency. *J Opt Soc Am A* 1996; 13: 1953-1959.
56. Peli E. In search of a contrast metric: matching the perceived contrast of Gabor patches at different phases and bandwidths. *Vision Res* 1997; 37: 3217-3224.
57. Fine EM, Peli E, Reeves A. Simulated cataract does not reduce the benefit of RSVP. *Vision Res* 1997; 37: 2639-2647.
58. García-Pérez MA, Peli E. The transition from DeVries-Rose to Weber's laws: comments on Rovamo, Mustenson and Näsänen (1995). *Vision Res* 1997; 37: 2573-2576.
59. Peli E, García-Pérez MA. Contrast sensitivity in dyslexia: deficit or artifact? *Optom Vision Sci* 1997; 74: 986-988.
60. Fine EM, Peli E. The benefits of RSVP over scrolled text vary with letter size. *Optom Vision Sci* 1998; 75: 191-196.
61. Peli E. The visual effects of head-mounted-display (HMD) are not distinguishable from those of desktop computer display. *Vision Res* 1998; 38: 2053-2066.
62. García-Pérez MA, Peli E. Lack of covariation of the effects of luminance and eccentricity on contrast sensitivity. *Optom Vision Sci* 1999; 76: 63-67.
63. Peli E. Simple 1-D image enhancement for head-mounted low vision aid. *Visual Impairment Res* 1999; 1: 3-10.
64. García-Pérez MA, Peli E. Imputation of direction of motion in one dimension. *J Opt Soc Am A* 1999; 16: 1531-1540.
65. Peli E. Field expansion for homonymous hemianopia by optically induced peripheral exotropia. *Optom Vision Sci* 2000; 77: 453-464.
66. Li L, Nugent A, Peli E. Are jagged (□ixilated) letters easier to recognize than smooth (anti aliases) letters in the periphery? *Visual Impairment Res.* 2000; 2: 143-154.
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82. Fullerton M, Peli E. Development of a System to study the impact of headlight Glare in a Driving Simulator. Proceedings of the fifth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Big Sky MT, 2009. 412-418
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93. Hwang AD, Peli E (2011) Headlight Glare Simulator for A Driving Simulator 2.0. 3rd International Conference on Road Safety and Simulation, in press
94. Pundlik S., Peli E., and Luo G. Time to Collision and Collision Risk Estimation from Local Scale and Motion. In G. Bebis et al. (Eds.): ISVC 2011, Part I, LNCS 6938, pp. 732–741, 2011, Springer-Verlag, Berlin Heidelberg

[Non-peer reviewed scientific or medical publications/materials in print or other media](#)

[Thesis](#)

Peli E. Eccentric fixation and peripheral saccades [MSc thesis]. 1979. In Hebrew.

Books, Monographs, and Text Books

1. Peli E, editor. Visual models for target detection and recognition (in memory of Arthur Menendez). Singapore, New Jersey, London, Hong Kong: World Scientific Publishing Co; 1995. 432 pages.
2. Peli E. and Peli D. Driving with Confidence: A practical Guide to Driving with Low Vision. Singapore, New Jersey, London, Hong Kong: World Scientific Publishing Co; 2002. 192 pages.

Professional educational materials or reports, in print or other media

Clinical Guidelines and Reports

1. Peli E. How to see the endothelium [letter]. Review Optom 1989; (Oct 18).
2. Peli E. Expanding visual fields. Photonic Problem Solver, Photonic Spectra 1995 March: 74.
3. Peli E. Emmetropia or ammetropia? An invited answer for the Consultation Section. Ann Ophthalmol 1998; 30: 7-9.
4. Peli E. Prism lenses for patients with hemianopia. Refractive Eyecare 2010, November, <http://www.refractiveeyecare.com/articles/prism-lenses-for-patients-with-hemianopia-304.html>

Educational Material

1. Peli E. Curricular proposal for a program of study in optometry, submitted to the Sackler Faculty of Medicine, Tel Aviv University; 1987. In Hebrew.
2. Peli E. Spatial vision models and displays. In: Seminar lecture notes, vol. II. Palaya del Ray, CA: Society for Information Display; 1993. P. F-3/1 – F-3/58.
3. Peli E. Spatial vision models for simulations and image quality metrics [short course notes]. SC4, VCIP'94, SPIE. Bellingham WA: The International Society for Optical Engineering; 1994.
4. Peli E. Visual, perceptual, and optometric issues with head-mounted displays (HMD). In: Seminar lecture notes, vol. I. Palaya del Ray, CA: Society for Information Display; 1996. P. M-10/1 – M-10/29.
5. Peli E. Driving with low vision. Internet Training course

Major curriculum offerings or innovative educational programs developed

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|-----------|---|
| 1986-1987 | Member, Advisory Committee for the Tufts University Electro-optics Technology Center programs in Digital Image Processing and Applied Image Processing, Medford, MA |
| 1987-1988 | Consultant, Tel Aviv University Faculty of Medicine, Ramat-Aviv, Israel, developed complete curriculum for a 4-year Optometry program in Hebrew |
| 1999-2001 | Member, the Bioengineering Center, a cooperative program of Tufts University school of Engineering and the Medical School in training Engineering students for a combined degree of Master in Engineering and MD |
| 2004 | Developed, organized, and team-taught a two-day course titled “Fitting and Training for Bioptic Driving.” The first such course in Holland and in Europe to the best of my knowledge. Visio Loo Erf Institute, Apeldoorn, The Netherlands
The demonstration project that included this course resulted in change of the law in The Netherland in 2009, now permitting bioptic driving. |
| 2011 | Developed and taught a two-day course on Vision and Head-Mounted Displays. Google Inc, Mountain View CA |

Professional and educational leadership roles related to teaching

1988	Chairman, session on “Vision, Representation, and Processing” at the SPIE Symposium on Visual Communications and Image Processing III, Cambridge, MA
1988	Moderator and Organizer, symposium entitled “Electro-optics Fundus Imaging” at the Annual Meeting of the American Academy of Optometry, Columbus, OH
1990	Moderator and Organizer, symposium entitled “Difficulties and Roadblocks in the Application of High-Tech to Low Vision” at the Annual Meeting of the American Academy of Optometry, Nashville, TN
1990-1991	Member, Technical Committee, SPIE Conference “Visual Communications and image processing ‘91”, Boston, MA
1991-1994	Member, Society for Information Display (SID) 1992 and 1993 Applied Vision Sub-Committee, 1994 Human Factors Sub-Committee
1992	Co-Chair and Organizer, session on “Auditory and Tactile Displays” SID-92 Conference, Boston MA
1992	Chair and Organizer, session on “Three-Dimensional Display: Monocular Versus Binocular Depth Cues” SID ‘92 Conference, Boston, MA
1992-1994	Member, Technical Committee, SPIE Conference “Visual Communications and Image Processing ‘93, ‘94,” Cambridge, MA
1993	Chairman, session on “Quantitative Evaluation of Visual Functioning,” The International Conference on Low Vision, Vision 1993, Groningen, The Netherlands
1993	Moderator and Organizer, symposium entitled “Seeing the Eye in Boston” at the Annual Meeting of the American Academy of Optometry, Boston, MA
1994	Chair and Organizer, sessions on “Adapting Displays for Special Users” and “Visual Performance with Synthetic Vision Displays” SID-94 conference, San Jose, CA
1994	Co-Chair and Organizer, session on “Visual Performance with Night Vision Systems “ SID ‘94 conference, San Jose, CA
1994-1995	Co-Chair Applied Vision/Human Factors Sub-Committee for SID ‘95 Conference
1995	Moderator and Organizer, symposium entitled “Visual issues with head mounted displays” at the Annual Meeting of the American Academy of Optometry, New Orleans, LA
1995-1996	Chair Applied Vision/Human Factors Sub-Committee for SID ‘96 Conference
1996	Co-Chair Applied Vision/Human Factors Sub-Committee for SID ‘98 and SID ‘99 Conferences
2001-2002	Co-Chair Applied Vision/Human Factors Sub-Committee for SID ‘02 Conference
2002	Co-Chair, symposium entitled “ Vision Therapy And Rehabilitation” XV International Congress of Eye Research, Geneva, Switzerland
2005	Co-Chair Session entitled “Mobility and Aging II” ARVO 2005.
2005	Co-Chair Session entitled “Attention and Search” SID05 International Symposium, Boston, MA
2005	Moderator, Contributed Vision Session, OSA Vision Meeting 2005, University of Arizona, Tucson, AZ
2008	Organizer and Moderator, R&R session on Driving with Low Vision, Vision 2008 – The 9 th International Conference on Low Vision, Montreal Canada
2008	Moderator, Contributed paper session, Driving II. Vision 2008 – The 9 th International Conference on Low Vision, Montreal Canada
2008	Organizer and Moderator, Session on Driving with Low Vision, Envision 2008 Conference, San Antonio, TX
2009	Chair Session on “Medical Factors: Fitness to Drive”, Driving Assessment 2009, 5 th International Driving

- 2009 Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Big Sky, MT
Organizer and Moderator session on The Impact and Remediation of Visual Field Loss, Envision 09 Conference, San Antonio, TX
- 2010 Program Committee Member, Human Vision and Electronic Imaging XV Conference, SPIE's IS&T/SPIE Electronic Imaging, San Jose, CA
- 2010 Chair Session on "Image Quality" SID '10 conference, Seattle, WA
- 2011 Chair Session on Evaluating the Quality of the Stereoscopic Experience II: Joint with Conference 7863. Human Vision and Electronic Imaging XVI Conference, SPIE's IS&T/SPIE Electronic Imaging, San Francisco, CA
- 2011 Member of Discussion Forum I: 3D TV Dangers: Truth or Fiction. Human Vision and Electronic Imaging XVI Conference, SPIE's IS&T/SPIE Electronic Imaging, San Francisco, CA
- 2011 Co-Chair Session on Haute Technologie au Service du Malvoyant, Déficit Visuel et et réadaptation: Dimensions, affectives, sociales, neuroscientifiques et technologiques. Hôpitaux Universitaires de Genève (HUG), Geneva Switzerland
- 2011 Organizer and Moderator Symposium on cortical plasticity and vision impairment, American Academy of Optometry Annual Meeting, Boston, MA

[Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings](#)

Abstracts

1. Y.Y. Zeevi, E. Peli, and P.A. Wetzel (1981). Visual information processing during tracking of the point of gaze. Annual Meeting of the Optical Society of America, Orlando, FL. *J. Opt. Soc. Am.*, 71, 1555-1556.
2. E. Peli and J.P. Comerford (1982). Dynamics of eye movements in unilateral cover test. *Invest. Ophthalmol. Vis. Sci.*, 22 (ARVO Suppl.), 266.
3. M.M. Scheiman, E. Peli, and D. LiBassi (1982). Auditory biofeedback used to enhance con-vergence insufficiency therapy. (Annual Meeting of the American Academy of Optometry, Philadelphia, PA.) *Am. J. Optom. Physiol. Opt.*, 59, 80P.
4. E. Peli and T. Peli (1982). Compensatory image enhancement for low-vision publication. (Annual Meeting of the American Academy of Optometry, Philadelphia, PA.) *Am. J. Optom. Physiol. Opt.*, 59, 41P.
5. E. Peli, O. Katsumi, Y. Oguchi, and T. Kawara (1983). Effect of contrast on the fusional component of VEP. Annual Meeting of the American Academy of Optometry, Houston, TX. *Am. J. Optom. Physiol. Opt.*, 60, 25P.
6. G.T. Timberlake, M.A. Mainster, E. Peli, R.A. Augliere, and L.E. Arend (1984). Reading with a macular scotoma: Analysis by scanning laser ophthalmoscopy. *Invest. Ophthalmol. Vis. Sci.*, 25 (ARVO Suppl.), 252.
7. B. Schwartz, P. Nagin, E. Peli, and T. Hedges (1984). Clinical use of computerized image analysis. Annual Meeting of the American Academy of Ophthalmology, Atlanta, GA. *Ophthalmology*, 91(9)(Suppl.), 109 (invited paper).
8. E. Peli (1984). Improving endothelial view in slit lamp specular microscopy. Annual Meeting of the American Academy of Optometry, St. Louis, MO.) *Am. J. Optom. Physiol. Opt.*, 61, 36P.
9. E. Peli and T. Hedges (1984). Computerized enhancement of retinal nerve fiber layer photographs. (Annual Meeting of the American Academy of Optometry, St. Louis, MO). *Am J. Optom. Physiol. Opt.*, 61, 40P.
10. E. Peli, T. Hedges, and B. Schwartz (1985). Computerized processing of retinal nerve fiber layer photographs. *Invest. Ophthalmol. Vis. Sci.*, 26 (ARVO Suppl.), 222.
11. M. Lahav, E. Peli, and P. Nagin (1985). Towards quantitative evaluation of macular degeneration using computerized image analysis. *Invest. Ophthalmol. Vis. Sci.*, 26 (ARVO Suppl.), 58.
12. E. Peli, L. Arend, and G.T. Timberlake (1985). Model-based image enhancement for the visually impaired. (Annual Meeting of the Optical Society of America, Washington, DC.) *J. Opt. Soc. Am. A*, 2, 89.
13. E. Peli (1985). High-tech fundus imaging technique. Annual Meeting of the American Academy of Optometry, Atlanta, GA. *Am. J. Optom. Physiol. Opt.*, 62, 104P.
14. E. Peli, M. Lahav, and P. Nagin (1985). Computer measurement of drusen from fundus photographs. Annual Meeting of the American Academy of Optometry, Atlanta, GA. *Am. J. Optom. Physiol. Opt.*, 62, 26P.
15. E. Peli, T. McInnes, J. Hamlin, and T. Hedges, III (1985). Nerve fiber layer photography - comparison of parameters. (Annual Meeting of the American Academy of Optometry, Atlanta, GA.) *Am. J. Optom. Physiol. Opt.*, 62, 47P.
16. E. Peli (1986). Adaptive directional enhancement of striated patterns based on visual model. *Invest. Ophthalmol. Vis. Sci.*, 27 (ARVO Suppl.), 227.
17. M. Lahav and E. Peli (1986). Drusen measurement by computerized image analysis. *Invest. Ophthalmol. Vis. Sci.*, 27 (ARVO Suppl.), 319.
18. T. Hedges, E. Peli, T. McInnes, J. Hamlin, and B. Schwartz (1986). Nerve fiber layer photography - comparative study. *Invest. Ophthalmol. Vis. Sci.*, 27 (ARVO Suppl.), 103.
19. G. T. Timberlake, R. Augliere, E. Peli, R. Webb, and G. Hughes (1986). Generation-II Clinical scanning laser ophthalmoscope. *Invest. Ophthalmol. Vis. Sci.*, 27 (ARVO Suppl.), 313.
20. M. Lahav and E. Peli (1986). Drusen measurements by computerized image analysis. *Clinical Ophthalmology* 86, Proceedings of the Annual Meeting of the Massachusetts Eye & Ear Infirmary Alumni Association, 12.
21. R. Augliere, E. Peli, and G.T. Timberlake (1986). Registration of digital fundus images. Proceedings of the First Meeting of the Ocular Image Analysis Group, Sarasota, FL.
22. E. Peli, T.R. Hedges, and B. Schwartz (1986). Computer image processing of the retinal nerve fiber layer. Proceedings of the First Meeting of the Ocular Image Analysis Group, Sarasota, FL.
23. M. Lahav and E. Peli (1986). Drusen measurement by computerized image analysis. Proceedings of the First Meeting of the Ocular Image Analysis Group, Sarasota, FL.
24. T.R. Hedges and E. Peli (1986). Computer image enhancement of the retinal nerve fiber layer, International Neuro-Ophthalmology Society (INOS) Congress, Hakone, Japan.
25. E. Peli (1986). Adaptive orientation-sensitive enhancement of striated patterns based on visual model. (Annual Meeting of the Optical Society of America, Seattle, WA.) *J. Opt. Soc. Am. A*, 62.
26. G.T. Timberlake, E. Peli, and R.A. Augliere (1986). SLO measurement of peripheral visual acuity. (Annual Meeting of the American Academy of Optometry, Toronto, Canada.) *Am. J. Optom. Physiol. Opt.*, 63, 85P.
27. E. Peli, T. McInnes, T. Hedges, and J. Hamlin (1986). Films and filters for NFL photography. (Annual Meeting of the American Academy of Optometry, Toronto, Canada.) *Am. J. Optom. Physiol. Opt.*, 63, 25P.

28. E. Peli (1986). Bifocal ametropia in a pseudophakic: a case report. (Annual Meeting of the American Academy of Optometry, Toronto, Canada.) *Am. J. Optom. Physiol. Opt.*, 63, 84P.
29. J. Berman, R. Hutchins, S. Gold, E. Peli, and P. Lindsey (1987). Measurement of light exposure in infants at high risk for developing retinopathy of prematurity. *Invest. Ophthalmol. Vis. Sci.* 28 (ARVO Suppl.), 119.
30. G. McCormack, E. Peli, and S. Sokol (1987). Phase sensitive vs. vector detection in sweep VEP. *Invest. Ophthalmol. Vis. Sci.*, 28 (ARVO Suppl.), 409.
31. T. R. Hedges, E. Peli, and B. Schwartz (1987). Computerized measurement of nerve fiber layer defects. *Invest. Ophthalmol. Vis. Sci.*, 28 (ARVO Suppl.), 187.
32. M. Sebag, M. Lahav, and E. Peli (1987). Quantitative image analysis of drusen. *Invest. Ophthalmol. Vis. Sci.*, 28 (ARVO Suppl.), 121.
33. E. Peli (1987). Seeing the forest for the trees: The role of nonlinearity. *Invest. Ophthalmol. Vis. Sci.*, 28 (ARVO Suppl.), 365.
34. S. Sokol, E. Peli, D. Reese, B. Brown, and M. Brigell (1988). Eye movement recording in pediatric patients: Preliminary results. Annual Meeting of the American Association for Pediatric Ophthalmology and Strabismus, Boston, MA.
35. E. Peli (1988). Contrast in complex images. (Annual Meeting of the Optical Society of America, Santa Clara, CA.) *J. Opt. Soc. Am. A (suppl.)*, FD8.
36. E. Peli (1988). Restoration of retinal images taken through cataracts. (Annual Meeting of the Optical Society of America, Santa Clara, CA.) *J. Opt. Soc. Am. A (suppl.)*, WY6.
37. E. Peli, R.B. Goldstein, C.L. Trempe, and L.E. Arend (1988). Image enhancement improves face recognition for visually impaired. (Annual Meeting of the American Academy of Optometry, Columbus, OH.) *Am. J. Optom. Physiol. Opt.*, 65, 127P.
38. E. Peli (1988) Processing of retinal images and visual models. (Symposium on "Electrooptical fundus imaging," Annual Meeting of the American Academy of Optometry, Columbus, OH.) *Am. J. Optom. Physiol. Opt.*, 65, 111P.
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40. R. Goldstein and E. Peli (1989). Simulations of low-vision perception of images and the CSF. *Invest. Ophthalmol. Vis. Sci.*, 30 (ARVO Suppl.), 397.
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42. S. Sokol, E. Peli, A. Moskowitz, and D. Reese (1989). Pursuit eye movements in strabismic children. *Invest. Ophthalmol. Vis. Sci.*, 30 (ARVO Suppl.), 305.
43. F. Koenig, E. Peli, A. Jalkh, F. Van de Velde, G. Coscas (1989). Diabetic retinopathy: quantitative image analysis of changes in the perifoveolar capillary bed. *Invest. Ophthalmol. Vis. Sci.*, 30 (ARVO Suppl.), 435.
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46. J. Yang, E. Peli, R. Goldstein, and A. Reeves (1990). The effect of luminance on superthreshold contrast matching. *Invest. Ophthalmol. Vis. Sci.*, (ARVO Suppl.), 323.
47. G. McCormack and E. Peli (1990). Measurement accuracy of the "New Aniseikonia Test". Annual Meeting of the American Academy of Optometry, Nashville TN.) *Optom Vision Sci (Suppl.)*, 67, 148.
48. E. Peli (1990). Limitations of image enhancement for the visually impaired. Annual Meeting of the American Academy of Optometry, Nashville TN.) *Optom Vision Sci (Suppl.)*, 67, 162.
49. R. Goldstein, E. Peli, and G. Young (1991). Matching the contrast of luminance increments, decrements, and transitions. *Invest. Ophthalmol. Vis. Sci.*, 31 (ARVO Suppl.), 1271.
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53. R. Goldstein, E. Peli, G. Young, and E. Lee (1992). Enhancement of the critical frequencies reduces face recognition in normals. *Invest. Ophthalmol. Vis. Sci.* 32 (ARVO Suppl.), 1418.
54. E. Peli (1992). Real time image enhancement for the visually impaired. Annual Meeting of the American Academy of Optometry, Orlando FL.) *Optom Vision Sci (Suppl.)*, 69, 167.
55. E. Peli, J. Rabinovich, and D. Barnea (1992). A new deformable adjustable lens for presbyopia. Annual Meeting of the American Academy of Optometry, Orlando FL.) *Optom Vision Sci (Suppl.)*, 69, 115.
56. E. Peli and G. Geri (1993). Putting simulations of peripheral vision to the test. *Invest. Ophthalmol. Vis. Sci.*, 34

- (ARVO Suppl.), 820.
57. E.M. Fine, E. Peli, and K. Pisano (1993) Contrast enhancement does not appreciably increase the reading rate of scrolled text. *Invest. Ophthalmol. Vis. Sci.*, 34 (ARVO Suppl.), 789. ARVO/NEI Travel Fellowship awarded to Elisabeth Fine.
 58. O. Katsumi, E. Peli, R. Wajima, and T. Hirose (1993) Human visual system compensate for differences in temporal frequency by creating an intermediate frequency. *Invest. Ophthalmol. Vis. Sci.*, 34 (ARVO Suppl.), 1186.
 59. E. Peli, E.M. Fine, and K. Pisano (1993). Video enhancement for the visually impaired. The international Conference on Low Vision, Groningen, The Netherlands.
 60. E.M. Fine and E. Peli (1993). Contrast enhancement for low vision reading. Annual Meeting of the American Academy of Optometry, Boston MA. *Optom Vision Sci (Suppl.)*, 70, 112.
 61. E. Peli, A. Labianca, and L. Arend (1994). Suprathreshold contrast matching across luminance and spatial frequency. *Invest. Ophthalmol. Vis. Sci.*, 35 (ARVO Suppl.), 1368.
 62. E. Fine, E. Peli, and A. Labianca (1994). Increased size of contrast enhanced text does not account for increases in reading rate. *Invest. Ophthalmol. Vis. Sci.*, 35 (ARVO Suppl.), 1950.
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Narrative Report (limit to 500 words)

My research spans the interface between engineering and ophthalmic and vision research. I conduct basic and clinical research. I am trying to understand how we see in the context of low vision rehabilitation and in relation to the more general question of human vision and image display interaction. I have been able to transfer knowledge and science from health sciences to military and aviation areas and vice-versa to the benefit of all areas.

I have developed a metric for contrast in complex images that has been widely adopted. This permits quantitative specification of contrast, the most relevant visual parameter, in images. The contrast metric can also be used to simulate normal or low-vision. It was applied successfully in the development of image enhancement for the visually impaired (an area of research I pioneered), and in understanding visual function in wide field simulations.

I am studying the issue of vision and display interaction in general and the clinical aspects of head mounted displays in particular. I have made contributions to the understanding of the impact of some optical parameters on the comfort of the users and conducted clinical research in the evaluation of these displays.

I have been applying all aspect of my basic research to the development and evaluation of novel vision aids and methods of low-vision rehabilitation, which is also my chosen area of clinical practice.

My research also includes contributions to the areas of eye movement analysis, image processing, image communications, and optics. I have been a leader in the area of image processing of retinal images, developing optical and computational methods for enhancement of clinical images and quantitative analysis ranging from measurements of retinal nerve fiber defects to the measurements of Drusen in macular degeneration. In the area of eye movements, I have contributed to the understanding of eye movement control with peripheral vision, the analysis and modification of eye movements in binocular vision disorders, and the interaction of eye movement with the perception of displayed images. In optics I developed a novel fiber optics reading magnifier, a calibration device for the confocal microscope, an adjustable spectacle lens for presbyopia and introduced the use of circular polarizers in ophthalmic imaging.

The recent work in low vision is concentrating on mobility and devices for mobility. This includes pedestrian mobility and driving. We are studying both aspects in real world studies as well as in virtual environments (walking and driving simulators).