Joseph N. Mait

Born: Bronx, New York; November 16, 1958

Education:

Ph.D.	Georgia Institute of Technology,	1985
M.S.E.E.	Georgia Institute of Technology,	1980
B.S.E.E.	University of Virginia,	1979
High School	Gar-Field High School (Woodbridge, Virginia)	1975

Experience:

MITRE
McLean, Virginia
Principal Computational Imaging Engineer (Part-Time On-Call), August 2019 – present

University of Rochester
Institute of Optics
Rochester, New York
Adjunct Professor, January 2021 – present

A. James Clark School of Engineering, University of Maryland
Department of Electrical Engineering
College Park, Maryland
Adjunct Professor, September 2022 – present
Adjunct Associate Professor, September 1997-May 2005
Visiting Scientist, September-December 1996

Southern Methodist University
Department of Electrical and Computer Engineering
Dallas, Texas
Adjunct Professor, January 2020 – December 2021

Rice University
Department of Electrical and Computer Engineering
Houston, Texas
Adjunct Professor, January 2020 – December 2021

Mait-Optik LLC
Bethesda, Maryland
Consultant, June 2018 – December 2020

U.S. Army Research Laboratory
Adelphi, Maryland
ST, March 2005 – May 2018
Engineer, November 1988-March 2005

Leibniz Institute for Photonic Technology
Jena, Federal Republic of Germany
Visiting Scientist, March-November 2017

Graduate School, Duke University
Department of Electrical and Computer Engineering
Durham, North Carolina
Adjunct Professor, November 2009-November 2012

National Defense University
Center for Technology and National Security Policy
Washington, DC
Senior Research Fellow, September 2001-September 2004

Physikalisches Institut der Universität Erlangen-Nürnberg
Lehrstuhl für Angewandte Optik
Erlangen, Federal Republic of Germany
Visiting Scientist, April-September 1990
Visiting Scientist, January-August 1986

School of Engineering and Applied Science, University of Virginia
Department of Electrical Engineering
Charlottesville, Virginia
Visiting Assistant Professor, January 1989-January 1993
Assistant Professor, September 1984-January 1989

Honors and Awards:

1. ARL Award for Lifetime Achievement (November 2018)
   "for outstanding leadership in developing science and technology for the future military"
2. Department of the Army Decoration for Exceptional Civilian Service (May 2018)
   “for extraordinary contributions while serving as Senior Technical Researcher”
3. ARL Commander’s Award (February 2017)
   "for developing ARL’s Essential Research Areas"
4. ARL Commander’s Award (December 2016)
   "for selfless service and unwavering commitment and dedication to ARL"
5. Presidential Rank Award 2014 (Meritorious Senior Professional)
6. Presidential Rank Award Finalist 2013 (not awarded due to US Government Sequestration)
7. IEEE H. A. Wheeler Prize Award 2011
   “for best applications paper in the IEEE Transactions on Antennas and Propagation”
   (Broadband antireflective properties of inverse motheye surface, September 2010)
8. Fellow of ARL 2005
9. Elected Fellow of OSA 2003
   "for contributions to the theory and design of diffractive optical elements"
10. Elected Fellow of SPIE 2000
    "for contributions to diffractive optical design"
11. ARL Technical Achievement Award for Science 1999
    "for analysis, design, and fabrication of subwavelength lenses"
12. ARL Associated Achievement Award for Excellence in Technical Publication 1996
    "for comprehensive and concise approach to designing diffractive elements using scalar diffraction theory"
13. U.S. Army Research and Development Award 1992
    "for contributions to diffractive optics"
14. Sigma Xi, National Research Honorary Society (member)
15. Tau Beta Pi, National Engineering Honorary Society (member)
16. Eta Kappa Nu, National Electrical Engineering Honorary Society (member)
17. President's Fellowship, Georgia Institute of Technology (1979-1980)
18. Graduated with Highest Distinction, University of Virginia (1979)
19. Raven Society, University of Virginia (1978)

Consulting Activities

1. Zeiss Vision Care
   Aalen, Germany
   June 2018 – May 2019
2. Phase Sensitive Innovations
   Newark, Delaware
   January 2019 – April 2019
3. Optalysys
   Wakefield, United Kingdom
   September 2018

Government and Government-related Activities

1. Positions at MITRE
   a. September 2019- present
      Principal Computational Imaging Engineer
2. Positions at ARL
   a. December 2017 – May 2018
      Senior Technical Researcher for Electromagnetics (ST)
      RF & Electronics Division, Sensors and Electron Devices Directorate
   b. March 2017 – November 2017
      Senior Technical Researcher for Electromagnetics (ST)
      Office of the Director
   c. November 2013 – February 2017
      Chief Scientist and Senior Technical Researcher for Electromagnetics (ST)
      Office of the Director
   d. March 2005 – November 2013
      Senior Technical Researcher for Electromagnetics (ST)
      RF & Electronics Division, Sensors and Electron Devices Directorate
   e. April 1999-March 2005
      Senior Engineer
      EO & Photonics Division, Sensors and Electron Devices Directorate
   f. April 1997-April 1999
      Associate for Science and Technology
      Sensors and Electron Devices Directorate
   g. November 1988-April 1997
      Engineer
      Optics Branch, EO & Photonics Division, Sensors and Electron Devices Directorate
3. Program Management
   a. 2006-2011
      Micro Autonomous Systems and Technology Collaborative Technology Alliance
      $8M per year
   b. 1997-2001
      Microelectronics Research Collaboration Program
      $2M per year
4. Recent Sponsored Research

a.	DARPA M-GRIN	2010-2013	$500,000 total
b.	DARPA SCENICC	2011-2012	$540,000 total
c.	DARPA MOSAIC	2010-2011	$170,000 total
e.	DARPA MONTAGE	2005-2006	$175,000 total

5. Subject Matter Expert Support
   a. DARPA SCORE October 2020-present
   b. DARPA EXTREME September 2019-present
   c. DARPA REVEAL September 2019-June 2020
6. Government Committees
   a. 2013 Member
      Fast-Track Action Committee on Optics and Photonics

Physical Science Sub-Committee of the National Science and Technology Council, White House Office of Science and Technology Policy

b. 2010- 2012 Chairman
ARL Fellows

c. 2006 Chairman
Research, Development, and Engineering Command Initiative on Peer Review & Benchmarking

3. Government Workshops chaired by me
   a. Summit on Impact of Federal Government Restrictions on Scientific and Technical Conference Attendance (July 2014, December 2014, April 2015, September 2015, December 2015, April 2016)
   Army Research Laboratory
   b. Army Science Planning and Strategy Meetings (2013, 2014, 2015, 2016)
   Army Research Laboratory
   c. 2007 Symposium on the Science of Autonomy and Bio-inspired Systems
   The Technical Cooperation Program (an international agreement between the US, Australia, & New Zealand)
   d. 2004 Next-Generation Electronics
   Army Research Laboratory
   e. 2004 Actions to Enhance the Use of Commercial Information Technology in DoD Systems
   National Defense University
   f. 2002 Education and Transformation
   National Defense University
   g. 2002 Objective Force Network and Communications Challenges
   National Defense University
   h. 2001 Information Technology Solutions for Challenges Facing the 21st Century Army
   National Defense University
   i. 1999 Workshop on Integrated Imaging
   Army Research Office
4. Source Selection and Review Panels
   a. 2014 DARPA REVEAL
   b. 2014 DARPA Imaging through Scattering Media
   c. 2011 DARPA M-GRIN
   d. 2011 DARPA SCENICC
   e. 2009 DARPA MOSAIC
   f. 2009 IARPA BEST
   g. 2007 DARPA PHASER
   h. 2007 ARL Micro-autonomous Systems and Technology Collaborative Technology Alliance
   i. 2003 DARPA MONTAGE
   j. 2003 DARPA Opto-Centers
   k. 2003 NSF Ultra-High Capacity Optical Communications and Networking
   l. 2001 NSF Ultra-High Capacity Optical Communications and Networking
   m. 2000 DARPA PWASSP

Academic Boards and Panels:

1. Degrees Advised
   a. Dennis W. Prather, PhD, Department of Electrical and Computer Engineering, University of Maryland (1997).
   b. Dennis W. Prather, MSEE, Department of Electrical and Computer Engineering, University of Maryland (1992).
   c. Yi-Wei Lu, MSEE, Department of Electrical and Computer Engineering, University of Virginia (1989).
2. Advisory Boards
   a. Advisory Board, Department of Engineering, Norfolk State University (2014)
   b. Advisory Board, Department of Electrical and Computer Engineering, Southern Methodist University (2009-2013).
   c. Advisory Board, Department of Electrical and Computer Engineering, Catholic University of America (1999-2004).
3. Examination Committees
   a. Christy Fernandez-Cull, Doctoral Examination Committee, Department of Electrical and Computer Engineering, Duke University (2010).
   b. Glenn S. Himes, Doctoral Examination Committee, Department of Electrical and Computer Engineering, University of Virginia (1991).
   c. Ken Gibbs, Doctoral Examination Committee, Department of Nuclear Engineering, University of Virginia (1991).
   d. Tristan J. Tayag, Doctoral Examination Committee, Department of Electrical and Computer Engineering, University of Virginia (1991).
   e. Brian M. Sadler, Doctoral Examination Committee, Department of Electrical and Computer Engineering, University of Virginia (1991).
   f. James J. Sluss, Doctoral Examination Committee, Department of Electrical and Computer Engineering, University of Virginia (1989).
   g. David Veasey, Doctoral Examination Committee, Department of Electrical and Computer Engineering, University of Virginia (1989).
   h. Ken W. Tobin, Doctoral Examination Committee, Department of Nuclear Engineering, University of Virginia (1987).
   i. Rich Carson, Doctoral Examination Committee, Department of Electrical and Computer Engineering, University of Virginia (1985).

Professional Activities:

1. Smithsonian National Museum of American History
   a. Division of Science and Medicine
      Volunteer – October 2019 – present
   b. Lemelson Center for the Study of Invention and Innovation
      Military Invention Day, Moderator for Technology Startup Pitches – May 2019
2. National Academy of Sciences
   a. Review Panels
      (1) Panel Member, 2018-2019: Review of In-house Laboratory Independent Research in Electronics at the Army's Research, Development, and Engineering Centers
3. Optica (formerly the Optical Society of America)
   a. Membership
      (1) Fellow: 2003-present
      (2) Member: 1979-2003
   b. Editorships:
      (1) with G. L. Wood and KK Choi, Focus Issue on Optics and Photonics Research at ARL, Appl. Opt. 56:3 (January 2017).
      (2) with M Testorf and S. Sinzinger, Special Focus on Adolf Lohmann's Legacy, Appl. Opt. 56:1 (January 2017).
      (3) with R. A. Athale, A. Mahalanobis, and M. A. Neifeld, Focus Issue on Compressive Sensing, Appl. Opt. 54:8 (March 2015)
      (4) 2009-2014 Editor-in-Chief, Applied Optics
      (5) with E. Mendez, N. Peyghambarian, and T.-C. Poon, Appl. Opt., Applied Optics 50th Anniversary Commemorative Reviews, Appl. Opt. 52:1 (January 2013).
      (6) with G. Bennett, P. B. Catrysse, J. E. Farrell, and B. Fowler, Special Focus on Imaging Systems and Applications, Appl. Opt. 51:4 (February 2012).
      (7) 2009-2014 Editorial Advisory Board. Advances in Optics and Photonics
      (8) 2004-2008 Division Editor for Information Processing, Applied Optics
      (9) 2000-2003 Topical Editor (Fourier Optics and Optical Information Processing), Information Processing Division, Applied Optics
      (10) Special Focus on Integrated Computational Imaging Systems, Opt. Express, Opt. Express (September 2003)
      (11) with J. van der Gracht, *Integrated Computational Imaging Systems*, OSA Topics in Optical Science (April 2002)
      (12) with H. P. Herzig, Feature Issue on Diffractive Optics and Micro-Optics, J. Opt. Soc. Am. A 18:11 (November 2001)
      (13) with H. P. Herzig, Feature Issue on Diffractive Optics and Micro-Optics, Appl. Opt. 38:14 (10 May 1999)
   c. Society Committee Participation
      (1) 2023-present Optica Open Advisory Panel, Chair
      (2) 2018-2022 Board of Editors, Chair
      (3) 2017 Publications Council, Rapid Action Committee on Authors' Needs
      (4) 2015-2016 Publications Council, Chair
      (5) 2014 Publications Council, Vice-Chair
      (6) 2004-2014 Board of Editors

(7) 2007 Time-To-Publication Ad Hoc Committee
(8) 2007 Chairman Nominating Committee, Emmett Leith Award for Optical Information Processing
(9) 2006 proposed, with Ravi Athale, and received approval for the Emmett Leith Award for Optical Information Processing
(10) 2004-2005 Chair, Optics in Information Systems Technical Division
(11) 2003-2004 Nominating Committee, Adolf Lomb Medal
(12) 2003 Vice-Chair, Optics in Information Systems Technical Division
(13) 2003 Teller's Committee
(14) 2001 Peer Review Rapid Action Committee
(15) 2000-2001 Holography Chair, Information Processing Technical Group
(16) 2000-2001 Nominating Committee, Esther Hoffman Beller Award for Education
(a) 2001 Chairman
(17) 1999-2001 Member and Education Services Council
(a) 2000 proposed new dues structure for members from developing nations, adopted 2002

d. Conference Committee Participation:
(1) 2021 Flat Optics
(2) 2017 Computational Optical Sensing and Imaging
(3) 2016 Computational Optical Sensing and Imaging, General Co-Chair
(4) 2015 Frontiers in Optics: Special Session to Honor Adolf Lohmann
(5) 2015 Computational Optical Sensing and Imaging
(6) 2014 Incubator Meeting on Implications of Compressive Sensing Concepts to Imaging Systems
(7) 2014 Signal Recovery and Synthesis
(8) 2014 Imaging Systems
(9) 2013 Computational Optical Sensing and Imaging
(10) 2013 Imaging Systems
(11) 2012 Computational Optical Sensing and Imaging
(12) 2012 Imaging Systems
(13) 2011 Computational Optical Sensing and Imaging
(14) 2011 Imaging Systems, Program Co-Chair
(15) 2010 Imaging Systems
(16) 2009 Computational Optical Sensing and Imaging
(17) 2007 Computational Optical Sensing and Imaging
(18) 2006 A Half Century of Holography, Optical Signal Processing, Diffractive Optics and Art: A Tribute to Emmett Leith
(19) 2005 Optical Solutions for Homeland and National Security (proposed conference and served as general chair)
(20) 2005 Frontiers in Optics
(21) 2005 Information Photonics
(22) 2005 Computational Optical Sensing and Imaging (formerly Integrated Image Gathering and Processing)
(23) 2005 Nanophotonics for Information Systems
(24) 2004 Frontiers in Optics
(25) 2003 Frontiers in Optics

(26) 2002 Frontiers in Optics (formerly Annual Meeting)
(27) 2002 Topical Meeting on Diffractive Optics and Micro-Optics
(28) 2001 Annual Meeting
(29) 2001 Topical Meeting on Integrated Image Gathering and Processing (proposed conference and served as general chair)
(30) 2000 Annual Meeting
(31) 2000 Topical Meeting on Diffractive Optics and Micro-Optics (general chair)
(32) 1998 Annual Meeting (local tours)
(33) 1998 Topical Meeting on Diffractive Optics (program co-chair)
(34) 1996 Topical Meeting on Diffractive Optics

2. SPIE
   a. Membership
      (1) Fellow: 2000-present
      (2) Member: 1979-2000
   b. Editorships:
      (1) 2004-2009 Associate Editor (Digital Holography), Journal of Electronic Imaging
      (2) J. N. Mait and D. W. Prather, *Milestone Series of Selected Papers on Subwavelength Diffractive Optics*, (SPIE Press, Bellingham WA, 2001).
   c. Society Committee Participation
      (1) 2009 SPIE Fellows Committee
      (2) 2007 SPIE Fellows Committee
      (3) 1998-2000 Publications Committee
         (a) 2000 proposed Journal of Microlithography, Microtechnologies, and Microsystems (premiered March 2002)
   d. Conference Committee Participation:
      (1) 2012 Micro- and Nanotechnology Sensors, Systems, and Applications Conference
      (2) 2011 Correlation Optics
      (3) 2011 Micro- and Nanotechnology Sensors, Systems, and Applications Conference
      (4) 2011 RF and Millimeter-wave Photonics
      (5) 2010 Micro- and Nanotechnology Sensors, Systems, and Applications Conference
      (6) 2009 Correlation Optics
      (7) 2008 Analysis of Sensors, Signals, and Emerging Techniques in Imaging
      (8) 2007 Correlation Optics
      (9) 2006 SPIE Visual Information Processing XV
      (10) 2005 Correlation Optics
      (11) 2005 SPIE Visual Information Processing XIV
      (12) 2004 SPIE Visual Information Processing XIII
      (13) 2003 SPIE Wave Optics and Photonic Devices for Optical Information Processing
      (14) 2003 SPIE Physics, Theory, and Applications of Periodic Structures in Optics
      (15) 2003 SPIE Symposium to Honor Emil Wolf
      (16) 2003 SPIE Visual Information Processing XII
      (17) 2002 SPIE Visual Information Processing XI
      (18) 2001 SPIE Physics, Theory, and Applications of Periodic Structures
      (19) 2001 SPIE Wave Optics for Optical Information Processing
      (20) 2001 SPIE Visual Information Processing X

(21) 2000 SPIE Visual Information Processing IX: proposed special invitation-only session on new imaging modalities to SPIE Technical Director
(22) 1998 SPIE Diffractive and Holographic Optics Technology V:
(23) 1997 SPIE Diffractive and Holographic Optics Technology IV
(24) 1996 SPIE Diffractive and Holographic Optics Technology III
(25) 1995 SPIE Optical Implementation of Information Processing
(26) 1995 SPIE Diffractive and Holographic Optics Technology II
(27) 1994 SPIE Optical Implementation of Information Processing
(28) 1994 SPIE Diffractive and Holographic Optics Technology
(29) 1993 SPIE Laser Coherence and Control

3. The Institute of Electrical and Electronics Engineers
   a. Membership
      (1) Senior Member: 2003-present
      (2) Member: 1984-2003
      (3) Student Member: 1978-1984
   b. Conference Committee Participation:
      (1) 1999 Parallel Interconnects

4. Other Professional Technical Conference Committees
   a. American Society for Composites, Annual Meeting 2022 (4-Minute Elevator Pitch)
   b. American Society for Composites, Annual Meeting 2021 (4-Minute Elevator Pitch)
   c. Gordon Research Conference on Image Science (session moderator), 2016
   d. International Conference on Computational Photography, 2014
   e. International Conference on Computational Photography, 2010
   f. International Commission on Optics 20, 2005

Publications: Technology

Edited Volumes:

1. G. Olague, S. Bakshi, J. A. Borrego, J. N. Mait, A. Martínez-Garcia, and M. Testorf, Guest eds., "Optics Theory and Practice in Iberoamerica: Introduction to the Feature Issue," Appl. Opt., 59, IBO1-IBO5 (2020). (doi: 10.1364/AO.396153)
2. J. N. Mait, Guest ed., "US Army Research Laboratory focus issue: Introduction," Appl. Opt. 56 (2017). (doi: 10.1364/AO.56.00ARL1)
3. M. Testorf, S. T. Sinzinger, and J. N. Mait, Guest eds., "Current Research Topics Pioneered by Adolf Lohmann: Introduction," Appl. Opt. 56 (2017). (doi: 10.1364/AO.56.000IO1)
4. J. N.Mait and K.-K. Choi, "Light and Light-Based Technologies," Research@ARL, US Army Research Laboratory (November 2015).
5. J. N. Mait, A. Mahalanobis, M. A. Neifeld, and R. A. Athale, "Compressive Sensing Focus Issue: introduction," Appl. Opt. 54, CS1-CS3 (2015). (doi: 10.1364/AO.54.000CS1) (1)
6. J. N. Mait, G. Videen, N. Nasrabadi, and K.-K. Choi, Imaging and Image Processing, Research@ARL, US Army Research Laboratory (January 2014).
7. J. N. Mait, B. M. Sadler, A. Swami, and B. J. West, Autonomous Systems, Research@ARL, US Army Research Laboratory (August 2013).
8. A. Swami, B. J. West, P. J. Franaszczuk, and J. N. Mait, Network Sciences, Research@ARL, US Army Research Laboratory (March 2013). (http://www.arl.army.mil/www/pages/172/docs/ResearchARL_March2013.pdf)
9. T. R. Jow, B. M. Rice, B. E. Forch, J. N. Mait, and J. W. McCauley, Energy and Energetics, Research@ARL, US Army Research Laboratory (July 2012). (http://www.arl.army.mil/www/pages/172/docs/Research_at_ARL_2012_s.pdf)
10. J. N. Mait, E. Mendez, N. Peyghambarian, and T.-C. Poon, Guest eds., Applied Optics 50th Anniversary Commemorative Reviews, Appl. Opt. 52:1, CR1-CR3 (2013).
11. G. Bennett, P. B. Catrysse, J. E. Farrell, B. Fowler, and J. N. Mait, Guest eds., Special Focus on Imaging Systems and Applications, Appl. Opt. 51:4, ISA1-ISA (1 February 2012).
12. J. N. Mait, Editorial Advisory Board, *Encyclopedia of Modern Optics*, B. D. Guenther, ed. (Elsevier Academic Press, London, December 2004).
13. J. N. Mait, Guest ed., Special Focus on Integrated Computational Imaging Systems, Opt. Express 11:18 (8 September 2003).
14. J. N. Mait and J. van der Gracht, eds., *Integrated Computational Imaging Systems*, OSA Trends in Optics and Photonics 66, (Optical Society of America, Washington DC, 2002).
15. J. N. Mait and H. P. Herzig, Guest eds., Feature Issue on Diffractive Optics and Micro-Optics, J. Opt. Soc. Am. A 18:11 (November 2001).
16. J. N. Mait and D. W. Prather, eds., *Milestone Series of Selected Papers on Subwavelength Diffractive Optics*, (SPIE Press, Bellingham WA, 2001). (7)

Numbers in parenthesis indicate citations not including self-citations. Current as of January 2020.

17. J. N. Mait and H. P. Herzig, Guest eds., Feature Issue on Diffractive Optics and Micro-Optics, Appl. Opt. 38:14 (10 May 1999). (3)
18. J. A. Cox, M. G. Moharam, H. P. Herzig, and J. N. Mait, Guest eds., Feature Issue on Diffractive optics and micro-optics: Modeling, design, fabrication, and applications, J. Opt. Soc. Am. A 16:5 (May 1999). (5)

Book Chapters:

1. D. W. Prather, J. N. Mait, T. Dillon, A. Sure, and X. Gao, "Design and Fabrication of Diffractive Optical Elements," *Encyclopedia of Modern Optics*, B. D. Guenther, ed. (Elsevier Academic Press, London, 2004), 290-297.
2. J. N. Mait, "Diffractive Optics," in *Encyclopedia of Optical Engineering*, R. B. Johnson and R. G. Driggers, eds. (Marcel Dekker, New York, 2003), 365-373.
3. J. N. Mait, D. W. Prather, and N. C. Gallagher, "Subwavelength Diffractive Optics," in *Holography for the New Millenium*, J. Ludman, H. J. Caulfield, and J. Riccobono, eds., (Springer-Verlag, New York, 2002), 79-99.
4. J. N. Mait, "From ink bottles to e-beams: a historical perspective of diffractive optical technology," *Optical Processing and Computing: A Tribute to Adolf Lohmann*, H. J. Caulfield, ed., (SPIE Press, Bellingham WA, 2002), 201-232.
5. G. P. Behrmann and J. N. Mait, "Hybrid (Refractive/Diffractive) Optics," in *Micro-optics: Elements, systems, and applications*, H. P. Herzig, ed. (Taylor and Francis, London, 1997), 259-292. (4)
6. J. N. Mait, "Fourier Array Generators," in *Micro-optics: Elements, systems, and applications*, H. P. Herzig, ed. (Taylor and Francis, London, 1997), 293-323. (13)
7. R. A. Athale and J. N. Mait, "Image Processing Applications of Acousto-Optics" in Acousto-Optic Signal Processing: Theory and Implementation, 2nd edition, N. J. Berg and J. M. Pellegrino, eds. (Marcel Dekker, New York, 1996), 449-478.

Refereed Journal Publications:

1. G. Beadie and J. N. Mait, “Material Selection for GRIN-based Achromatic Doublets,” Opt. Express 27, 17771-17794 (2019). (doi: 10.1364/OE.27.017771)
2. J. N. Mait, G. W. Euliss, and R. A. Athale, “Computational Imaging,” Adv. Opt. Photon. 10, 409-483 (2018). (doi: 10.1364/AOP.10.000409) (14)
3. K. K. Choi, J. N. Mait, J. M. Pellegrino, and G. L. Wood, “Optics research at the U.S. Army Research Laboratory,” Appl. Opt. 56, B103-B115 (2017). (doi: 10.1364/AO.56.00B103) (1)
4. J. N. Mait, C. Harrity, R. D. Martin, C. A. Schuetz, S. Shi, and D. W. Prather, “Minimum Bias Image Processing with a Distributed Aperture Millimeter Wave Imager,” Appl. Opt. 56, A52-A61 (2017). (doi: 10.1364/AO.56.000A52) (1)
5. J. N. Mait, G. Beadie, R. A. Flynn, and P. Milojkovic, “Dispersion Design in Gradient Index Elements using Ternary Blends,” Opt. Express **24**, 29295-29301 (2016). (doi: 10.1364/OE.24.029295) (4)

6. V. M. Patel, J. N. Mait, D. W. Prather, and A. S. Hedden, “Computational Millimeter Wave Imaging: Problems, Progress and Prospects,” IEEE Signal Processing Magazine 33, 109-118 (2016). (doi: 10.1109/MSP.2016.2581206) (1)
7. J. N. Mait, G. Beadie, P. Milojkovic, and R. A. Flynn, “Chromatic Analysis of a First-order Radial GRIN Lens,” Opt. Express 23, 22069-22086 (2015). (doi: 10.1364/OE.23.022069) (11)
8. V. M. Patel and J. N. Mait, “Compressive Passive Millimeter-Wave Imaging With Extended Depth of Field,” Opt. Eng. 51, 091610 (2012). (doi: 10.1117/1.OE.51.9.091610) (6)
9. J. N. Mait, R. D. Martin, C. A. Schuetz, and D. W. Prather, “Millimeter Wave Imaging with Engineered Point Spread Functions,” Opt. Eng. 51, 091606 (2012). (doi: 10.1117/1.OE.51.9.091606) (3)
10. P. Milojkovic and J. N. Mait, “Space-Bandwidth Scaling for Wide Field-of-View Imaging,” Appl. Opt. 51, A36-A47 (2012). (doi: 10.1364/AO.51.000A36) (4)
11. M. S. Mirotznik, B. Good, P. Ransom, D. Wikner and J. N. Mait, "Broadband Antireflective Properties of Inverse Motheye Surfaces," IEEE Trans. Antennas and Propag. 58, 2969-2980 (2010). (doi: 10.1109/TAP.2010.2052575) (29) **(winner 2011 H. A. Wheeler Prize Award for best applications paper in the IEEE Transactions on Antennas and Propagation)**
12. C. Fernandez-Cull, D. A. Wikner, J. N. Mait, M. Matthies, and D. J. Brady, “Millimeter-wave compressive holography,” Appl. Opt. 49, E67-82 (2010). (doi: 10.1364/AO.49.000E67) (73)
13. M. S. Mirotznik, B. Good, P. Ransom, D. Wikner and J. N. Mait, "Iterative Design of Moth-Eye AR Surfaces at Millimeter Wave Frequencies," Microwave and Optical Technology Letters 52, 561-568 (2010). (doi: 10.1002/mop.24973) (4)
14. J. N. Mait, D. A. Wikner, M. S. Mirotznik, J. van der Gracht, G. P. Behrmann, B. L. Good, and S. A. Mathews, "94-GHz Imager with Extended Depth of Field," IEEE Trans. Antennas Propag. 57, 1713-1719 (2009). (9)
15. M. S. Mirotznik, D. Pustai, D. W. Prather, and J. N. Mait, "Design of two dimensional polarization-selective diffractive optical elements using form-birefringent microstructures," Appl. Opt. 43, 5947-5954 (2004). (13)
16. J. N. Mait, R. A. Athale, and J. van der Gracht, "Evolutionary paths in imaging and recent trends," Opt. Express 11, 2093-2101 (2003). (39)
17. D. W. Prather, S. Venkataraman, M. Lecompte, F. Kiamilev, J. N. Mait, and G. J. Simonis, "VLSI-Scale Integration of DOEs for Chip Level Optical Interconnects," Photon. Technol. Lett. 13, 1112-1114 (2001). (16)
18. M. S. Mirotznik, D. W. Prather, J. N. Mait, W. A. Beck, S. Shi, and X. Gao, "Three dimensional analysis of subwavelength diffractive optical elements using the finite-difference-time-domain method," Appl. Opt. 39, 2871-2880 (2000). (33)
19. J. N. Mait, A. Scherer, O. Dial, D. W. Prather, and X. Gao, "Diffractive lens fabricated with binary features less than 60 nm," Opt. Lett. 25, 381-383 (2000). (48)
20. B. S. Shoop, T. D. Wagner, J. N. Mait, G. K. Kilby, and E. K. Ressler, "Design and analysis of a diffractive optical filter for use in an optoelectronic error diffusion neural network," Appl. Opt. 38, 3077-3088 (1999). (7)

21. J. N. Mait, D. W. Prather, and M. S. Mirotznik, "Design of binary subwavelength diffractive lenses by use of zeroth-order effective-medium theory," J. Opt. Soc. Am. A 16, 1157-1167 (1999). (49)
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68. J. N. Mait and W. T. Rhodes, "Iterative Design of Pupil Functions for Bipolar Incoherent Spatial Filtering," Processing of Images and Data from Optical Sensors, W. H. Carter, ed., Proc. SPIE 292, 66-72 (1981). (2)

Conference Presentations without Proceedings:

Invited Presentations

1. J. N. Mait, “Computational Imaging at ARL,” 2nd Annual Lincoln Imaging Sciences Center Next Generation Imaging Workshop (MIT Lincoln Laboratory), May 2012.
2. J. N. Mait, "Imaging: Its Past, Present, and Futures," Computational Imaging and Superresolution (Fifth Annual Charlotte Research Institute Summer Conference), June 2008.
3. D. J. Brady, D. U. Fluckiger, N. P. Pitsianis, R. Willett, T. Schulz, X. Sun, J. Mait, M. A. Fiddy, "Reconstruction Algorithms for MONTAGE Multi-Aperture IR Imagers," Optics in the South East 2006.
4. R. A. Athale, G. W. Euliss, and J. N. Mait, "Computational Imaging: Old Wine in New Bottles?" Frontiers in Optics (Annual Meeting of the Optical Society of America) 2006.
5. J. N. Mait, "A Historical Perspective of Imaging," 35th Winter Colloquium on the Physics of Quantum Electronics 2005.
6. J. N. Mait, invited panelist, "Seeing the Light: New Designs for Military Imagers," Engineering a Secure Future sponsored by Duke University, 18 November 2004.
7. J. N. Mait, invited panelist on "Army Applications for Integrated Computational Imaging Systems," Computational Imaging Panel Discussion, SPIE Annual Meeting 2002.
8. J. N. Mait, "Integrated Computational Imaging Systems," Annual Meeting of the Optical Society of America 2002.
9. D. W. Prather, M. S. Mirotznik, and J. N. Mait, "Rigorous modeling of finite, aperiodic diffractive optical elements," Annual Meeting of the Society for Industrial and Applied Mathematics 1997.
10. J. N. Mait, D. W. Prather, and M. S. Mirotznik, "Models for analysis and design of diffractive optical elements," Progress In Electromagnetics Research Symposium 1997.

Contributed Presentations

1. J. N. Mait, C. A. Schuetz, R. D. Martin, and D. W. Prather, “Millimeter Wave Computational Imaging,” Gordon Research Conference on Image Science (Easton MA, 2014).
2. C. Fernandez-Cull, M. Mattheiss, D. A. Wikner, J. N. Mait, and D. Brady, "A Compressive Imaging Demonstration Using Millimeter-Wave Digital Holography," 2010 USNC-URSI North American Radio Science Meeting (Boulder CO).
3. M. E. Testorf, C. Ly, and J. N. Mait, "Synthesis and implementation of 3-D wavefields for ranging applications," Frontiers in Optics 2007.
4. M. S. Mirotznik, O. Kilic, S. A. Mathews, B. Good, D. Wikner and J. N. Mait, "Design of Moth-eye Antireflective Surfaces at Microwave and Millimeter Wavelengths," USNC-URSI North American Radio Science Meeting July 2007 (Ottawa, Canada).
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9. A. E. Sanborn, B. L. Shoop, and J. N. Mait, "A diffractive optical element for interconnect weighting in an optoelectronic neural network," Annual Meeting of the Optical Society of America 2000.
10. J. N. Mait, A. Scherer, O. Dial, X. Gao, and D. W. Prather, "Fabrication and Characterization of a Binary Subwavelength Lens with 60 nm Features for Operation at 600 nm," Annual Meeting of the Optical Society of America 1999.
11. J. N. Mait, M. S. Mirotznik, and D. W. Prather, "Parametric Design of Subwavelength Diffractive Elements," Annual Meeting of the Optical Society of America 1999.
12. J. N. Mait, D. M. Mackie, M. S. Mirotznik, and D. W. Prather, "Investigation of the focal shift in subwavelength diffractive lenses," Annual Meeting of the Optical Society of America 1998.
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14. G. R. Kilby, B. L. Shoop, and J. N. Mait, "Optical error diffusion analog-to-digital conversion," Annual Meeting of the Optical Society of America 1997.
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2. V. Woolard, "Reconnaissance Robot Inspired By Natural Designs," The Daily Californian, (April 21, 2008). http://www.dailycal.org/article/101379/reconnaissance_robot_inspired_by_natural_designs)
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4. D. Mackenzie, "Novel Imaging Systems Rely on Focus-Free Optics," SIAM News vol. 36 no. 6 (July/August 2003), p. 1 & 10.
5. P. Weiss, "Pictures only a computer could love," Science News vol. 163 no. 13 (March 29, 2003), pp. 200-202.

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Recent Seminars:

1. "Computational Imaging: Making Pictures Only a Computer Can Love," Smithsonian National Museum of American History (Washington DC), September 8, 2020.
2. "Millimeter Wave Computational Imaging," Rice University, February 6, 2020.
3. "Computational Imaging," Zeiss Corporate Research (Oberkochen, Germany), July 17, 2019.
4. "A Review of Computational Imaging," George Washington University, July 18, 2018.
5. "A Review of Computational Imaging," University of Virginia, June 4, 2018.
6. "Achromatic Analysis and Dispersion Design in Gradient Index Lenses," Universität Karlsruhe (Karlsruhe, Germany), September 25, 2017.
7. "Computational Imaging," EPFL (Lausanne, Switzerland), May 11, 2017.
8. "Computational Imaging," EPFL-Neuchatel (Neuchatel, Switzerland), May 10, 2017.
9. "Achromatic Analysis and Dispersion Design in Gradient Index Lenses," GRINTech (Jena, Germany), April 27, 2017.
10. "Computational Imaging," Zeiss (Oberkochen, Germany), April 12, 2017.
11. "Achromatic Analysis and Dispersion Design in Gradient Index Lenses," Friedrich Schiller Universität (Jena, Germany), August 2, 2016.
12. "Achromatic Analysis and Dispersion Design in Gradient Index Lenses," Universität Erlangen-Nürnberg (Erlangen, Germany), August 1, 2016.
13. "Recent Research Topics: Computational Imaging & Graded-Index Optics," Universität Heidelberg (Mannheim, Germany), July 29, 2016.

Publications: Technology Policy

Edited Volumes:

1. J. N. Mait, “Science and Technology Planning for the Future—Operating in Three Realms,” in Adaptive Engagement for Undergoverned Spaces, A. B. Frank and E. M. Bartels, eds., (RAND Corporation, 2022).
2. J. N. Mait, ed., *Making IT Happen: Transforming Military Information Technology*, Defense and Technology Papers 20 (National Defense University Press, Washington DC, September 2005). (http://www.ndu.edu/ctnsp/Def_Tech/DTP%2020%20Making%20IT%20Happen.pdf)

Trade Publications:

1. A. A. Sciarretta, J. N. Mait, R. Chait, E. Redden, and J. Willcox, “Assessing Military Benefits of S&T Investments in Micro Autonomous Systems Utilizing a Gedanken Experiment,” Defense and Technology Paper 80 (National Defense University Press, Washington DC, January 2011). (http://www.ndu.edu/CTNSP/docUploaded//DTP%2080-Assesing%20Military%20Benefits%20of%20S&T.pdf)
2. A. A. Sciarretta, R. Chait, J. N. Mait, and J. Willcox, "A Methodology for Assessing the Military Benefits of Science and Technology Investments," Defense and Technology Papers 55 (National Defense University Press, Washington DC, September 2008). (http://www.ndu.edu/ctnsp/Def_Tech/DTP%2055%20Methodology%20for%20Assessing%20Military%20Benefits.pdf)
3. J. N. Mait, R. Chait, and A. A. Sciarretta, "Information Technology for Army Tactical Needs," in *Making IT Happen: Transforming Military Information Technology*, J. N. Mait, ed., Defense and Technology Papers 20 (National Defense University Press, Washington DC, September 2005). (http://www.ndu.edu/ctnsp/Def_Tech/DTP%2020%20Making%20IT%20Happen.pdf)
4. J. W. Lyons, J. N. Mait, and D. R. Schmidt, "Strengthening the Army R&D Program," Defense and Technology Papers 12 (National Defense University Press, Washington DC, March 2005). (http://www.ndu.edu/ctnsp/Def_Tech/DTP12_Army%20R&D.pdf)
5. J. N. Mait, M. H. Haney, K. Goossen, and M. P. Christensen, "Shedding Light on the Battlefield: Tactical Applications of Photonic Technology," Defense and Technology Papers 7 (National Defense University Press, Washington DC, November 2004). (3) (http://www.ndu.edu/ctnsp/Def_Tech/DTP7%20Photonics.pdf)
6. J. N. Mait and R. L. Kugler, "Alternative Approaches to Army Transformation," Defense Horizons 41 (National Defense University Press, Washington DC, July 2004). (http://www.ndu.edu/ctnsp/defense_horizons/DH41.pdf)
7. E. Zimet with R. E. Armstrong, D. C. Daniel, and J. N. Mait, "Technology, Transformation, and New Operational Concepts," Defense Horizons 31 (National Defense University Press, Washington DC, September 2003). (http://www.ndu.edu/inss/DefHor/DH31/DH31.pdf)

8. J. N. Mait and J. Grossman, "The Return to Relevancy: The US Army and the Future Combat Systems," Defense Horizons 13 (National Defense University Press, Washington DC, May 2002). Reprinted in National Defense Magazine, vol. 82, no. 586, September 2002, 26-28. (http://www.nationaldefensemagazine.org/article.cfm?Id=893)

Conference Presentations with Proceedings:

1. J. N. Mait, "Balancing Technology and Risk in the Future Combat Systems," 24th Army Science Conference, paper BO-04, 2004.

Conference Presentations without Proceedings:

Invited Presentations

1. J. N. Mait, invited panelist on "National Security," Uncle Sam Meets Silicon Valley, March 2018, sponsored by governmentCIO Media (https://www.governmentciomedia.com/uncle-sam-meets-silicon-valley).
2. J. N. Mait, invited panelist on "Future Trends Panel #2," Army Installations 2035 Workshop, May 2016, sponsored by the Assistant Secretary of the Army (Installations, Energy, and Environment).
3. J. N. Mait, "Applications for Advanced Microsystems from the Army Research Laboratory," Unmanned Systems Summit, June 2010, sponsored by IDGA.
4. J. N. Mait, invited panelist on "Modern UAVs: Designs, Payloads, and Capabilities," Conference on Unmanned Aerial Vehicles as an Instrument of War, December 2009, sponsored by the National Defense University.
5. J. N. Mait, "Technology and Transformation," Education and Transformation Workshop, September 2002, sponsored by the National Defense University.
6. J. N. Mait, "Vulnerabilities of Network Centric Warfare," Transformation and Technology, April 2002, sponsored by the National Defense University.
7. J. N. Mait, invited panelist on "Information Technology and the War," Information, Intelligence, and the War Against Terrorism, March 2002, sponsored by the University of Maryland Council for Security and Counter-Terrorism.

Other Presentations

1. J. N. Mait, "Autonomous Systems," presentation at National Defense University NDU 6001 Science & Technology For National Security, February 2009.
2. J. N. Mait, "Technology Assessment of FCS," presentation at National Defense University ICAF 6105 The US Military in Transformation, February 2002.

Technical Reports:

1. Report to the Congress: Information Technology Program, Center for Technology and National Security Policy, National Defense University (January 2006). (http://www.ndu.edu/ctnsp/NDU%20IT%20Report%20to%20Congress(Feb14%2006).pdf)

2. J. W. Lyons, J. N. Mait, and D. Schmidt, Technology Acceleration Opportunities for the Army's Current Force, National Defense University, February 2004. Prepared for the Deputy Assistant Secretary of the Army for Research and Technology.

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2. F. Donovan, "Mobile ad hoc network vulnerability at Issue," NetDefense vol. 1 no. 8 (March 4, 2004), p. 6.
3. "Information, Not Necessarily Force, Key to Anti-terrorism Efforts," University of Maryland, College Park Outlook, 2 April 2002
4. Defense News, 13 September 2002.

Video Interviews:

1. "Understanding Future War," Discovery Channel International, 17 September 2002.

Publications: Citations

According to Web of Science, over 100 of my works have been cited 1366 times (not including self-citations) in books, conference proceedings and major refereed optics journals, as indicated in the partial list below. Average citations per publication is 17.26 and my h-index is 18.

1. D. W. Prather, M. S. Mirotznik, and J. N. Mait, J. Opt. Soc. Am. A 14, 34-43 (1997): 134 citations

2. J. N. Mait, J. Opt. Soc. Am. A **12**, 2145-2158 (1995): 111 citations

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5. J. N. Mait, J. Opt. Soc. Am. A **7** (1990), 1514-1528: 82 citations

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