

# Hany Farid

---

CONTACT	Dartmouth College 6211 Sudikoff Laboratory Hanover, NH 03755	603.646.2761 farid@dartmouth.edu www.cs.dartmouth.edu/farid
APPOINTMENTS	<b>Dartmouth College, Department of Computer Science</b> <i>Albert Bradley 1915 Third Century Professor</i> <i>Department Chair</i> <i>Professor</i> <i>William H. Neukom 1964 Distinguished Professor of Computational Science</i> <i>David T. McLaughlin Distinguished Professor of Computer Science</i> <i>Professor</i> <i>Associate Professor</i> <i>Assistant Professor</i> <b>Dartmouth College, Tuck School of Business</b> <i>Adjunct Professor of Business Administration</i> <b>Counter Extremism Project</b> <i>Senior Adviser</i> <b>Fourandsix Technologies, Inc.</b> <i>Chief Technology Officer and Co-founder</i> <b>Stanford University</b> <i>Visiting Professor</i> <b>University of California, Berkeley</b> <i>Visiting Professor</i> <b>Dartmouth College, Neukom Institute for Computational Science</b> <i>Director</i>	<b>1999 – present</b> <i>2016 – present</i> <i>2015 – present</i> <i>2011 – 2016</i> <i>2008 – 2011</i> <i>2007 – 2008</i> <i>2006 – 2007</i> <i>2004 – 2006</i> <i>1999 – 2004</i> <b>2016 – present</b>  <b>2016 – present</b>  <b>2011 – present</b>  <b>2012 – 2014</b>  <b>2010 – 2012</b>  <b>2008 – 2011</b>
EDUCATION	<b>Massachusetts Institute of Technology</b> <i>Postdoctoral Fellow, Brain and Cognitive Sciences (adviser: Ted Adelson)</i> <b>University of Pennsylvania</b> <i>Ph.D., Computer Science (adviser: Eero Simoncelli)</i> <b>State University of New York at Albany</b> <i>M.S., Computer Science</i> <b>University of Rochester</b> <i>B.S., Computer Science with Applied Mathematics</i>	<b>1997 – 1999</b>  <b>1993 – 1997</b>  <b>1990 – 1992</b>  <b>1984 – 1988</b>
AWARDS	National Academy of Inventors (NAI), Fellow, 2016 University at Albany Excellence in Science and Technology Award, 2010 John Simon Guggenheim Fellowship, 2006 Alfred P. Sloan Fellowship, 2002	
FUNDING	DARPA. <i>Photons, Pixels, Photoshop and the Internet</i> , (929K), Co-PI, 2016 National Institute of Justice. <i>Degrade It</i> , (124K), 2016 Microsoft Corp. <i>Combating On-line Extremism</i> , 2016 NVIDIA Corp. <i>How Realistic is Photorealistic?</i> , (Equipment Grant), 2015 National Science Foundation. <i>GridIron</i> (474K), Co-PI, 2012 National Science Foundation. <i>Instrument Development for Biological Research</i> (212K), Co-PI, 2008 National Science Foundation. <i>Digital Imaging Laboratory at Dartmouth</i> (427K), 2007 Department of Homeland Security. <i>Digital Video Forensics</i> (255K), 2007 Howard Hughes Medical Institute. <i>Undergraduate Science Education</i> (1.5M), Co-PI, 2006 United States Air Force. <i>Digital Image Forensics</i> (380K), 2006 National Science Foundation. <i>The Evolution of Mate Choice in Damselflies</i> (535K), Co-PI, 2005 Bureau of Justice Assistance. <i>Digital Image Forensics</i> (125K), 2005 Microsoft Corp. (275K), 2005, 2006, 2007, 2009 Adobe Systems, Inc. (110K), 2004, 2006, 2008 National Institute of Justice. <i>Digital Tampering and Secrets</i> (690K), 2003 National Institute of Justice. <i>Detecting Digital Tampering</i> (250K), 2000 National Science Foundation. <i>CAREER: Mixing and Separating Digital Images</i> (315K), 2000	

- PUBLICATIONS (IMPACT)  $h$ -index=53; total citations=11,998; i500-index=5; i250-index=12; i100-index=33; i10-index=93.<sup>1</sup>
- PUBLICATIONS (BOOK) H. Farid. Photo Forensics, MIT Press, 2016.
- PUBLICATIONS (JOURNAL) H. Farid. Reigning in Online Abuses. *Technology and Innovation*, 2017 (in press).
- B. Mader, M.S. Banks, and H. Farid. Identifying Computer-Generated Portraits: The Importance of Training and Incentives. *Perception*, 2017 (in press).
- K. Greenham, P. Lou, J.R. Puzey, G. Kumar, C. Arnevik, H. Farid, J. H. Willis, and C.R McClung. Geographic Variation of Plant Circadian Clock Function in Natural and Agricultural Settings. *Journal of Biological Rhythms*, 32(1):26-34, 2016.
- M.J. Bravo and H. Farid. Observers Change their Target Template Based on Expected Context. *Attention, Perception, & Psychophysics*, 78(3):829-837, 2016.
- O. Holmes, M.S. Banks, and H. Farid. Assessing and Improving the Identification of Computer Generated Portraits. *ACM Transactions on Applied Perception*, 13(2):7:1-7:12, 2016.
- E.A. Cooper and H. Farid. Does the Sun Revolve Around the Earth? A Comparison between the General Public and On-line Survey Respondents in Basic Scientific Knowledge. *Public Understanding of Science*, 25(2):146-153, 2016.
- S. Pittala, E. Whiting, and H. Farid. A 3-D Stability Analysis of Lee Harvey Oswald in the Backyard Photo. *Journal of Digital Forensics, Security and Law*, 10(3):87-98, 2015.
- K. Greenham, P. Lou, S. E. Remsen, H. Farid, and C.R McClung. TRiP: Tracking Rhythms in Plants, an automated leaf movement analysis program for circadian period estimation. *Plant Methods*, 11(33):1-11, 2015.
- E. Kee, J. O'Brien, and H. Farid. Exposing Photo Manipulation from Shading and Shadows. *ACM Transactions on Graphics*, 33(5):165:1-165:21, 2014.
- M. Bravo and H. Farid. Informative Cues Can Slow Search: The cost of matching a specific template. *Perception*, 76(1):32-39, 2014.
- E. Kee, J. O'Brien, and H. Farid. Exposing Photo Manipulation with Inconsistent Shadows. *ACM Transactions on Graphics*, 32(4):28:1-12, 2013 (presented at SIGGRAPH).
- D.T. Bolger, T.A. Morrison, B. Vance, D. Lee, and H. Farid. A Computer-Assisted System for Photographic Mark-Recapture Analysis. *Methods in Ecology and Evolution*, 3(5):813-822, 2012.
- J. O'Brien and H. Farid. Exposing Photo Manipulation with Inconsistent Reflections. *ACM Transactions on Graphics*, 31(1):4:1-4:11, 2012 (presented at SIGGRAPH).
- H. Farid and M.J. Bravo. Perceptual Discrimination of Computer Generated and Photographic Faces. *Digital Investigation*, 8:226-235, 2012.
- M.J. Bravo and H. Farid. Task Demands Determine the Specificity of the Search Template. *Attention, Perception, & Psychophysics*, 74(1):124-131, 2012.
- V. Conotter, J. O'Brien, and H. Farid. Exposing Digital Forgeries in Ballistic Motion. *IEEE Transactions on Information Forensics and Security*, 7(1):283-296, 2012.

<sup>1</sup> $h$ -index = largest number  $h$  such that  $h$  publications have at least  $h$  citations;  $iN$ -index = number of publications with at least  $N$  citations. Citation counts according to GoogleScholar as of June 2017.

- E. Kee and H. Farid. A Perceptual Metric for Photo Retouching. *Proceedings of the National Academy of Sciences*, 108(50):19907-19912, 2011.
- E. Kee, M. K. Johnson, and H. Farid. Digital Image Authentication from JPEG Headers. *IEEE Transactions on Information Forensics and Security*, 6(3):1066-1075, 2011.
- H. Farid. The Lee Harvey Oswald Backyard Photos: Real or Fake? *Perception*, 38(11):1731-1734, 2009.
- H. Farid. A Survey of Image Forgery Detection. *IEEE Signal Processing Magazine*, 26(2):16-25, 2009.
- L. Shen, H. Farid and M.A. McPeck. Modeling 3-Dimensional Morphological Structures using Spherical Harmonics. *Evolution*, 63(4):1003-1016, 2009.
- H. Farid. Exposing Digital Forgeries from JPEG Ghosts. *IEEE Transactions on Information Forensics and Security*, 4(1):154-160, 2009.
- M.J. Bravo and H. Farid. The Specificity of the Search Template. *Journal of Vision*, 9(1):34, 1-9, 2009.
- M.A. McPeck, L. Shen and H. Farid. The Correlated Evolution of 3-Dimensional Reproductive Structure Between Male and Female Damselies. *Evolution*, 63(1):73-83, 2009.
- M.A. McPeck, L. Shen, J.Z. Torrey and H. Farid. The Tempo and Mode of 3-Dimensional Morphological Evolution in Male Reproductive Structures. *American Naturalist*, 171(5):E158-E178, 2008.
- M.J. Bravo and H. Farid. A Scale Invariant Measure of Image Clutter. *Journal of Vision*, 8(1):1-9, 2008.
- M.K. Johnson and H. Farid. Exposing Digital Forgeries in Complex Lighting Environments. *IEEE Transactions on Information Forensics and Security*, 2(3):450-461, 2007.
- W. Wang and H. Farid. Exposing Digital Forgeries in Interlaced and De-Interlaced Video. *IEEE Transactions on Information Forensics and Security*, 2(3):438-449, 2007.
- H. Farid and J. Kosecka. Estimating Planar Surface Orientation Using Bispectral Analysis. *IEEE Transactions on Image Processing*, 16(8):2154-2160, 2007.
- M.J. Bravo and H. Farid. The Depth of Distractor Processing in Search with Clutter. *Perception*, 36(6):821-829, 2007.
- M.J. Bravo and H. Farid. Object Recognition in Clutter. *Perception & Psychophysics*, 68(6):911-918, 2006.
- D. Rockmore, S. Lyu and H. Farid. A Digital Technique for Authentication in the Visual Arts. *International Foundation for Art Research*, (8)2:12-23, 2006.
- S. Lyu and H. Farid. Steganalysis Using Higher-Order Image Statistics. *IEEE Transactions on Information Forensics and Security*, (1)1:111-119, 2006. **[IEEE SPS Best Paper Award, 2010]**
- S. Periaswamy and H. Farid. Medical Image Registration with Partial Data. *Medical Image Analysis*, 10:452-464, 2006.
- A.C. Popescu and H. Farid. Exposing Digital Forgeries in Color Filter Array Interpolated Images. *IEEE Transactions on Signal Processing*, 53(10):3948-3959, 2005.
- H. Sun, K.E. Lunn, H. Farid, Z. Wu, D.W. Roberts, A. Hartov and K.D. Paulsen. Stereopsis-

- Guided Brain Shift Compensation. *IEEE Transactions on Medical Imaging*, 24(8):1039-1052, 2005.
- S. Lyu and H. Farid. How Realistic is Photorealistic? *IEEE Transactions on Signal Processing*, 53(2):845-850, 2005.
- A.C. Popescu and H. Farid. Exposing Digital Forgeries by Detecting Traces of Re-sampling. *IEEE Transactions on Signal Processing*, 53(2):758-767, 2005.
- H. Sun, D.W. Roberts, H. Farid, Z. Wu, A. Hartov and K.D. Paulsen. Cortical Surface Tracking Using a Stereoscopic Operating Microscope. *Neurosurgery*, 56:86-97, 2005.
- S. Lyu, D. Rockmore and H. Farid. A Digital Technique for Art Authentication. *Proceedings of the National Academy of Sciences*, 101(49):17006-17010, 2004.
- M.J. Bravo and H. Farid. Search For a Category Target in Clutter. *Perception*, 33:643-652, 2004.
- H. Farid and E.P. Simoncelli. Differentiation of Discrete Multi-Dimensional Signals. *IEEE Transactions on Image Processing*, 13(4):496-508, 2004.
- M.J. Bravo and H. Farid. Recognizing and Segmenting Objects in Clutter. *Vision Research*, 44(4):385-396, 2004.
- H. Sun, H. Farid, D.W. Roberts, K. Rick, A. Hartov, and K.D. Paulsen. A Non-Contacting 3-D Digitizer for Use in Image-Guided Neurosurgery. *Stereotactic and Functional Neurosurgery*, 80(1-4):120-124, 2003.
- R.H. Lilien, H. Farid and B.R. Donald. Probabilistic Disease Classification of Expression-Dependent Proteomic Data from Mass Spectrometry of Human Serum. *Journal of Computational Biology*, 10(6):925-946, 2003.
- S. Periaswamy and H. Farid. Elastic Registration in the Presence of Intensity Variations. *IEEE Transactions on Medical Imaging*, 22(7):865-874, 2003.
- M.J. Bravo and H. Farid. Object Segmentation by Top-Down Processes. *Visual Cognition*, 10(4):471-491, 2003.
- A. Heimsath and H. Farid. Hillslope Topography from Unconstrained Photographs. *Mathematical Geology*, 34(8):929-952, 2002.
- H. Farid. Temporal Synchrony in Perceptual Grouping: A Critique. *Trends in Cognitive Sciences*, 6(7):284-288, 2002.
- H. Farid and E.H. Adelson. Synchrony Does Not Promote Grouping in Temporally Structured Displays. *Nature Neuroscience*, 4(9):875-876, 2001.
- H. Farid and A.C. Popescu. Blind Removal of Lens Distortions. *Journal of the Optical Society of America*, 18(9):2072-2078, 2001.
- H. Farid. Blind Inverse Gamma Correction. *IEEE Transactions on Image Processing*, 10(10):1428-1433, 2001.
- M.J. Bravo and H. Farid. Texture Perception on Folded Surfaces. *Perception*, 30(7):819-832, 2001.
- R. van Ee, B. Anderson, and H. Farid. Occlusion Junctions do not Improve Stereoacuity. *Spatial Vision*, 15(1):45-49, 2001.
- M.J. Bravo and H. Farid. Effects of 3D Structure on Motion Segmentation. *Vision Research*, 40(6):695-704, 2000.

X. Jiang, H. Farid, E. Pistor and R. S. Farid. A New Approach to the Design of Uniquely Folded Thermally Stable Proteins. *Protein Science*, 9:403-416, 2000.

E.H. Adelson and H. Farid. Filtering Reveals Form in Temporally Structured Displays. *Science*, 286:2231, 1999.

H. Farid and E.H. Adelson. Separating Reflections from Images by use of Independent Components Analysis. *Journal of the Optical Society of America*, 16(9):2136-2145, 1999.

H. Farid and E.P. Simoncelli. Range Estimation by Optical Differentiation. *Journal of the Optical Society of America*, 15(7): 1777-1786, 1998.

E.P. Simoncelli and H. Farid. Steerable Wedge Filters for Local Orientation Analysis. *IEEE Transactions on Image Processing*, 5(9):1377-1382, 1996.

P.S. Shenkin, H. Farid and J.S. Fetrow. Prediction and Evaluation of Side-chain Conformations for Protein Backbone Structures. *Proteins: Structure, Function and Genetics*, 26:323-352, 1996.

PUBLICATIONS  
(MAGAZINE)

H. Farid. How to Detect Faked Photos. *American Scientist*, March-April, 2017.

H. Farid. Seeing Is Not Believing. *IEEE Spectrum*, 46(8):44-48, 2009.

H. Farid. Digital Image Forensics. *Scientific American*, 298(6):66-71, 2008.

H. Farid. Digital Doctoring: How to tell the real from the fake. *Significance*, 3(4):162-166, 2006.

H. Farid. Digital Doctoring: How to tell the real from the fake. *Digitális Fotó Magazin*, 9:100-103, 2006.

H. Farid. Is Seeing Believing. *New Scientist*, 179(2411):38-41, 2003.

H. Farid and S. Farid. Unfolding Sennedjem's Tomb. *KMT: A Modern Journal of Ancient Egypt*, 12(1):46-59, 2001.

PUBLICATIONS  
(BOOK CHAPTERS)

H. Farid. Photo Fakery and Forensics. In *Advances in Computers*, Volume 77, Academic Press, 2009

H. Farid. Digital Doctoring: can we trust photographs? In *Deception: From Ancient Empires to Internet Dating*, Stanford University Press, 2009.

PUBLICATIONS  
(REFEREED  
CONFERENCE  
PAPER)

S. Agarwal, D. Tran, L. Torresani, and H. Farid. Deciphering Severely Degraded License Plates. *SPIE Symposium on Electronic Imaging*, San Francisco, CA 2017.

T. Carvalho, H. Farid, and E. Kee. Exposing Photo Manipulation From User-Guided 3-D Lighting Analysis. *SPIE Symposium on Electronic Imaging*, San Francisco, CA, 2015.

V. Conotter, E. Bodnari, G. Boato, and H. Farid. Physiologically-based Detection of Computer Generated Faces in Video. *International Conference on Image Processing*, Paris, France, 2014.

M. Kirchner, P. Winkler and H. Farid. Impeding Forgers at Photo Inception. *SPIE Symposium on Electronic Imaging*, San Francisco, CA, 2013.

E. Kee and H. Farid. Exposing Digital Forgeries from 3-D Lighting Environments. *IEEE Workshop on Information Forensics and Security*, Seattle, WA, 2010.

V. Conotter, G. Boato and H. Farid. Detecting Photo Manipulation on Signs and Billboards. *International Conference on Image Processing*, Hong Kong, 2010.

H. Malik and H. Farid. Audio Forensics from Acoustic Reverberation. *International Conference*

- on Acoustics, Speech, and Signal Processing*, Dallas, TX, 2010.
- E. Kee and H. Farid. Digital Image Authentication from Thumbnails. *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2010.
- H. Farid and M.J. Bravo. Image Forensic Analyses that Elude the Human Visual System. *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2010.
- W. Wang and H. Farid. Exposing Digital Forgeries in Video by Detecting Double Quantization. *ACM Multimedia and Security Workshop*, Princeton, NJ, 2009.
- E. Kee and H. Farid. Printer Profiling for Forensics and Ballistics. *ACM Multimedia and Security Workshop*, Oxford, UK, 2008.
- W. Wang and H. Farid. Detecting Re-Projected Video. *10th International Workshop on Information Hiding*, Santa Barbara, CA, 2008.
- M.K. Johnson and H. Farid. Detecting Photographic Composites of People. *6th International Workshop on Digital Watermarking*, Guangzhou, China, 2007.
- W. Wang and H. Farid. Exposing Digital Forgeries in Video by Detecting Duplication. *ACM Multimedia and Security Workshop*, Dallas, TX, 2007.
- M.K. Johnson and H. Farid. Exposing Digital Forgeries Through Specular Highlights on the Eye. *9th International Workshop on Information Hiding*, Saint Malo, France, 2007.
- H. Farid. Exposing Digital Forgeries in Scientific Images. *ACM Multimedia and Security Workshop*, Geneva, Switzerland, 2006.
- W. Wang and H. Farid. Exposing Digital Forgeries in Video by Detecting Double MPEG Compression. *ACM Multimedia and Security Workshop*, Geneva, Switzerland, 2006.
- M.K. Johnson and H. Farid. Exposing Digital Forgeries Through Chromatic Aberration. *ACM Multimedia and Security Workshop*, Geneva, Switzerland, 2006.
- M.K. Johnson and H. Farid. Exposing Digital Forgeries by Detecting Inconsistencies in Lighting. *ACM Multimedia and Security Workshop*, New York, NY, 2005.
- S. Lyu, D. Rockmore, and H. Farid. Wavelet Analysis for Authentication. *Art + Math = X*, Boulder, CO, 2005.
- J.E. Dobson, J.B. Woodward, S.A. Schwarz, J.C. Marchesini, H. Farid, and S.W. Smith. The Dartmouth Green Grid. *Workshop on High Performance Computing in Academia (in conjunction with International Conference on Computational Science)*, Atlanta, GA, 2005.
- M.K. Johnson, S. Lyu and H. Farid. Steganalysis in Recorded Speech. *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2005.
- A.C. Popescu and H. Farid. Statistical Tools for Digital Forensics. *6th International Workshop on Information Hiding*, Toronto, CA, 2004.
- S. Lyu and H. Farid. Steganalysis Using Color Wavelet Statistics and One-Class Support Vector Machines. *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2004.
- H. Sun, H. Farid, K. Rick, A. Hartov, D.W. Roberts, and K.D. Paulsen. Estimating Cortical Surface Motion Using Stereopsis for Brain Deformation Models. *Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Montreal, Canada, 2003.
- J. Ford, H. Farid, F. Makedon, L.A. Flashman, T.W. McAllister, V. Megalooikonomou, and A.J.

- Saykin. Patient Classification of fMRI Activation Maps. *Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Montreal, Canada, 2003.
- S. Periaswamy and H. Farid. Elastic Registration with Partial Data. *Second International Workshop on Biomedical Image Registration*, Philadelphia, PA, 2003.
- H. Farid and S. Lyu. Higher-order Wavelet Statistics and their Application to Digital Forensics. *IEEE Workshop on Statistical Analysis in Computer Vision (in conjunction with CVPR)*, Madison, Wisconsin, 2003.
- S. Lyu and H. Farid. Detecting Hidden Messages Using Higher-Order Statistics and Support Vector Machines. *5th International Workshop on Information Hiding*, Noordwijkerhout, The Netherlands, 2002.
- H. Farid. Detecting Hidden Messages Using Higher-Order Statistical Models. *International Conference on Image Processing*, Rochester, NY, 2002.
- H. Sun, H. Farid, A. Hartov, K.E. Lunn, D.W. Roberts, K.D. Paulsen. Real-time Correction Scheme for Calibration and Implementation of Microscope-based Image-guided Neurosurgery. *SPIE's International Symposium on Medical Imaging*, San Diego, CA, 2002.
- H. Farid and A.C. Popescu. Blind Removal of Image Non-Linearities. *International Conference on Computer Vision (ICCV)*, Vancouver, Canada, 2001.
- H. Farid. Reconstructing Ancient Egyptian Tombs. *The International Symposium on Virtual and Augmented Architecture*, Dublin, Ireland, 2001.
- S. Periaswamy, J.B. Weaver, D.M. Healy Jr., D. Rockmore, P.J. Kostelec, and H. Farid. Differential Affine Motion Estimation for Medical Image Registration. *SPIE's 45th Annual Meeting*, San Diego, CA, 2000.
- H. Farid and E.H. Adelson. Separating Reflections and Lighting in Images Using Independent Components Analysis. *Computer Vision and Pattern Recognition (CVPR)*, June 1999.
- H. Farid and E.P. Simoncelli. Optimally Rotation-Equivariant Directional Derivative Kernels. *Computer Analysis of Images and Patterns (CAIP)*, Kiel, Germany, 1997.
- H. Farid and E.P. Simoncelli. A Differential Optical Range Camera. *Optical Society of America*, Rochester, NY, 1996.
- E.P. Simoncelli and H. Farid. Direct Differential Range Estimation Using Optical Masks. *European Conference on Computer Vision (ECCV)*, Cambridge, UK, 1996.
- E.P. Simoncelli and H. Farid. Steerable Wedge Filters. *International Conference on Computer Vision (ICCV)*, Boston, MA, 1995.
- H. Fuchs, G. Bishop, K. Arthur, L. McMillan, R. Bajcsy, S.W. Lee, H. Farid and T. Kanade. Virtual Space Teleconferencing Using a Sea of Cameras. *First International Symposium on Medical Robotics and Computer Assisted Surgery*, Pittsburgh, PA, 1994.
- K. Arthur, G. Bishop, R. Bajcsy, H. Farid, H. Fuchs, S.W. Lee, L. McMillan and A. State. Virtual Reality and Telepresence for 21st Century Remote Medical Consultation. *Second Carolina Conference in Biomedical Engineering*, 1994.

PUBLICATIONS  
(CONFERENCE  
ABSTRACT)

- S. Nightingale, K. Wade, H. Farid, and D. Watson. Can Shadows and Reflections Help in the Detection of Photo Forgeries? *Society for Applied Research in Memory and Cognition*, Sydney, Australia, 2017.
- D. Finnegan, G. Hamilton, L. Stearns, A. LeWinter, H. Farid, and H. Renedo. Tidewater Glacier

- Velocities from Repeat Ground-Based Terrestrial LiDAR Scanning; Helheim Glacier, Southeast Greenland. *Transactions of the American Geophysical Union*, San Francisco, CA, 2014.
- M.J. Bravo and H. Farid. Search Templates Can be Adapted to the Context, but Only for Unfamiliar Targets. *Vision Sciences*, St. Pete Beach, FL, 2014.
- M.J. Bravo and H. Farid. Symbolic Distractor Cues Facilitate Search. *Vision Sciences*, Naples, FL, 2012.
- M.J. Bravo and H. Farid. Diagnostic Features are Prominent in Object Representations. *Vision Sciences*, Naples, FL, 2011.
- D.T. Bolger, T. Morrison, B. Vance and H. Farid. Development and Application of a Computer-Assisted System for Photographic Mark-Recapture Analysis. *Ecological Society of America*, Pittsburgh, PA, 2010.
- D.T. Bolger, T. Morrison, B. Vance and H. Farid. A New Software Application for Photographic Mark Recapture Analysis. *Society for Conservation Biology*, Edmonton Alberta, Canada, 2010.
- H. Farid and M.J. Bravo. Photo Forensics: How Reliable is the Visual System? *Vision Sciences*, Naples, FL, 2010.
- M.J. Bravo and H. Farid. Training Determines the Target Representation for Search. *Vision Sciences*, Naples, FL, 2009.
- H. Farid. Digital Image Forensics. *American Academy of Forensic Sciences*, Washington, DC, 2008.
- H. Farid. Digital Video Forensics. *American Academy of Forensic Sciences*, Washington, DC, 2008.
- H. Farid and M.J. Bravo. Photorealistic Rendering: How Realistic Is It? *Vision Sciences*, Sarasota, FL, 2007.
- M.J. Bravo and H. Farid. A Measure of Relative Set Size for Search in Clutter. *Vision Sciences*, Sarasota, FL, 2007.
- D.C. Finnegan, H. Farid, D.E. Lawson and W. Krabill. Quantifying Surface Fluctuations using Optical Flow Techniques and Multi-Temporal LiDAR. *Transactions of the American Geophysical Union*, San Francisco, CA, 2006.
- M.J. Bravo and H. Farid. Using an Interest Point Detector to Find Potential Fragments for Recognition. *Vision Sciences*, Sarasota, FL, 2006.
- V. Maljkovic, P. Martini and H. Farid. The Contribution of Statistical Image Differences to Human Rapid Categorization of Natural Scenes is Negligible. *Vision Sciences*, Sarasota, FL, 2006.
- H. Farid and D.C. Finnegan. Quantifying Planetary and Terrestrial Geologic Surfaces Using Wavelet Statistics. *Transactions of the American Geophysical Union*, San Francisco, CA, 2005.
- M.J. Bravo and H. Farid. The Depth of Distractor Processing in Search Through Clutter. *Vision Sciences*, Sarasota, FL, 2005.
- M.J. Bravo and H. Farid. Still Searching a Cluttered Scene. *Vision Sciences*, Sarasota, FL, 2004.
- V. Maljkovic, P. Martini and H. Farid. The Time-Course of Categorization of Real-Life Scenes with Affective Content. *Vision Sciences*, Sarasota, FL, 2004.



H. Sun, H. Farid D. Roberts, K. Rick, A. Kartov, and K. Paulsen. A Non-contacting 3-D Digitizer For Use in Image-Guided Neurosurgery. *American Society for Stereotactic and Functional Neurosurgery*, New York City, 2003.

M.J. Bravo and H. Farid. Searching a Cluttered Scene. *Vision Sciences*, Sarasota, FL, 2003.

A.M. Heimsath and H. Farid. Hillslope Topography from Unconstrained Photographs. *Transactions of the American Geophysical Union*, San Francisco, CA, 2002.

H. Farid and E.H. Adelson. Energy versus Synchrony in Perceptual Grouping. *Vision Sciences*, Sarasota, FL, 2002.

M.J. Bravo and H. Farid. Segmentation in Clutter. *Vision Sciences*, Sarasota, FL, 2002.

S. Inati, H. Farid, K. Sherwin, and S. Grafton. A Global Probabilistic Approach to Fiber Tractography with Diffusion Tensor MRI. *Human Brain Mapping*, Brighton, UK, 2001.

M.J. Bravo and H. Farid. Top-Down and Bottom-Up Processes for Object Segmentation. *Vision Sciences*, Sarasota, FL, 2001.

J.B. Weaver, S. Periaswamy, H. Farid, D.N. Rockmore, C.J. Kasales, W. Black, and D.M. Healy Jr. Lesion Size Estimation Using Warped Registration of Interval Images. *International Society for Magnetic Resonance in Medicine*, 2001.

H. Farid and E.H. Adelson. Standard Mechanisms Can Explain Grouping in Temporally Synchronous Displays. *Investigative Ophthalmology and Visual Science*, Fort Lauderdale, FL, 2000.

M.J. Bravo and H. Farid. The Role of Object Recognition in Scene Segmentation. *Investigative Ophthalmology and Visual Science*, Fort Lauderdale, FL, 2000.

M.J. Bravo and H. Farid. Segmentation in 3D. *Investigative Ophthalmology and Visual Science*, Fort Lauderdale, FL, 1999.

M.J. Bravo and H. Farid. The Effects of 2D and 3D Smoothness on Motion Segmentation. *Investigative Ophthalmology and Visual Science*, Fort Lauderdale, FL, 1998.

H. Farid, E.P. Simoncelli, M.J. Bravo and P.R. Schrater. Effects of Contrast and Period on Perceived Coherence of Moving Square-Wave Plaids (evidence for a speed bias in the human visual system). *Investigative Ophthalmology and Visual Science*, Fort Lauderdale, FL, 1995.

H. Farid and E.P. Simoncelli. The Perception of Transparency in Moving Square-Wave Plaids. *Investigative Ophthalmology and Visual Science*, Sarasota, FL, 1994.

H. Farid, P.S. Shenkin, J. Greene and J.S. Fetrow. Prediction of Side Chain Conformations in Protein Cores and Loops From Rotamer Libraries. *ASBMB/Biophysical Society Joint Meeting*, Houston, TX, 1992.

PUBLICATIONS (MISCELLANEOUS) H. Farid. Man Versus Machine: How do we make technology work better for us – start with tech companies, *Vice*, 2017.

H. Farid. Digital Imaging, *Encyclopedia of Perception*, 2009.

H. Farid. Photography Changes What We are Willing to Believe, *Smithsonian Photography Initiative: Click! Photography Changes Everything*, 2008.

PUBLICATIONS (TECHNICAL REPORT) H. Farid. A 3-D Lighting and Shadow Analysis of the JFK Zapruder Film (Frame 317). TR2010-677, Department of Computer Science, Dartmouth College, November 2010.

H. Farid. A 3-D Photo Forensic Analysis of the Lee Harvey Oswald Backyard Photo. TR2010-

669, Department of Computer Science, Dartmouth College, May 2010.

E. Kee and H. Farid. Detecting Photographic Composites of Famous People. TR2009-656, Department of Computer Science, Dartmouth College, October 2009.

H. Farid. Digital Image Ballistics from JPEG Quantization: A Followup Study. TR2008-638, Department of Computer Science, Dartmouth College, September 2008.

H. Farid and J.B. Woodward. Video Stabilization and Enhancement. TR2007-605, Department of Computer Science, Dartmouth College, September 2007.

H. Farid. Digital Image Ballistics from JPEG Quantization. TR2006-583, Department of Computer Science, Dartmouth College, September 2006.

K. Johnson and H. Farid. Metric Measurements on a Plane from a Single Image. TR2006-579, Department of Computer Science, Dartmouth College, August 2006.

H. Farid. Discrete-Time Fractional Differentiation from Integer Derivatives. TR2004-528, Department of Computer Science, Dartmouth College, December 2004.

H. Farid. Creating and Detecting Doctored and Virtual Images: Implications to The Child Pornography Prevention Act. TR2004-518, Department of Computer Science, Dartmouth College, October 2004.

A.C. Popescu and H. Farid. Exposing Digital Forgeries by Detecting Duplicated Image Regions. TR2004-515, Department of Computer Science, Dartmouth College, September 2004.

S. Lyu, D. Rockmore, and H. Farid. Digital Art Forensics. TR2003-466, Department of Computer Science, Dartmouth College, June 2003.

H. Farid. Detecting Steganographic Messages in Digital Images. TR2001-412, Department of Computer Science, Dartmouth College, September 2001.

S. Periaswamy and H. Farid. Differential Elastic Image Registration. TR2001-413, Department of Computer Science, Dartmouth College, September 2001.

H. Farid. Detecting Digital Forgeries Using Bispectral Analysis. MIT AI Memo 1657, June 1999.

H. Farid, S.W. Lee, and R. Bajcsy. View Selection Strategies for Multi-View, Wide-Baseline Stereo. Technical Report, Department of Computer Science, University of Pennsylvania, 1994.

#### PATENTS

Photo Forensics Using Image Signatures (9,031,329), 2015

Detecting Image Inconsistencies (8,965,106), 2015

Device and Method for Detecting Dust on an Image Sensor (8,654,217), 2014

Perceptual Rating Of Digital Image Retouching (14/359,169), 2014

Device and Method for Detecting Whether an Image is Blurred (8,538,140), 2013

Single Lens Range Imaging Method and Apparatus (5,703,677), 1997

#### POPULAR PRESS

Cyberethics & The Digital Bystander, *NHPR, The Exchange*, 6.12.17

Tech Firms Resisting Free Anti-Extremist Algorithm, *CNN, The Lead With Jake Tapper*, 6.5.17

How Tech Isn't Stopping Terror, *On The Media*, 5.27.17

When Hatred Goes Viral: Inside Social Media's Efforts to Combat Terrorism, *Scientific American*, 5.24.17

Facebook isn't Doing Enough to Control Violent Posts, Says Expert, *CBC, The Current*, 4.28.17

Experts Say Facebook Boss Mark Zuckerberg Needs to do More to Stop Heinous Content Posts, *Courier Mail*, 4.18.17

Video of Robert Godwin's Murder Prompts Facebook to Examine Policies, *New York Daily News*, 4.18.17

Inside YouTube's Battle Against the Internet's Darkest Corners, *Bloomberg*, 3.30.17  
 How Algorithms Can Help Beat Islamic State, *Wall Street Journal*, 3.11.17  
 Fighting Digital Depravity, *Enterprise Magazine*, *Valley News*, 2.27.17  
 There's an Algorithm to Fight Online Extremism, *NPR*, *Science Friday*, 1.27.17  
 Tech Companies Announce Plan To Identify Extremist Content Online, *NPR*, *All Things Considered*, 12.6.16  
 Blocking Terrorist Propaganda, *NHPR*, *Word of Mouth*, 8.30.16  
 Is Social Media a New Weapon in War?, *Weekend Sunrise*, *Australia*, 8.26.16  
 How The War On Child Porn Is Helping Us Fight ISIS Propaganda, *Huffington Post*, 7.8.16  
 Software Developed At Dartmouth Looks To Stop The Spread Of Extremist Videos, *VPR's Morning Edition*, 7.5.16  
 Using New Technologies To Fight ISIS Online, *NPR*, *Here & Now*, 6.23.16  
 Halting the Hate, *The Economist*, 6.23.16  
 New Technology Fights Online Extremism, *Morning Joe*, 6.23.16  
 A Tool to Delete Beheading Videos Before They Even Appear Online, *The Atlantic*, 6.22.16  
 New Tool to Take Down Terrorism Images Online Spurs Debate on What Constitutes Extremist Content, *Washington Post*, 6.21.16  
 Fighting Isis with Computer Code: Professor Builds Software to Combat Daesh Propaganda, *International Business Times UK*, 6.20.16  
 Microsoft-Funded Professor Builds Software to Fight Terrorism, *Bloomberg*, 6.17.16  
 How Tech Can be Used to Track Terrorists, *Risk & Reward*, 12.12.15  
 Why Anti-Terror Technology Has Its Limits, *NPR*, *Weekend Edition*, 12.12.15  
 Was Controversial Lee Harvey Oswald Photo Faked?, *BBC Radio*, 10.21.15  
 Verdict is in on Whether Lee Harvey Oswald Photo is a Fake, *USA Today*, 10.20.15  
 Another Lee Harvey Oswald Conspiracy Theory Bites the Dust, *New York Post*, 10.19.15  
 This Photo DOES Show Lee Harvey Oswald Holding the Gun..., *Daily Mail*, 10.19.15  
 Fake Photos on *All Sides with Ann Fisher*, 8.27.13  
 Software That Exposes Faked Photos in *New York Times*, 8.19.13  
 Crowdsourcing the Boston Marathon Investigation on *NPR*, *Here & Now*, 4.18.13  
 Rumor: North Korea's Latest Military Image Photoshopped? in *MSN News*, 3.28.13  
 The Gaussian Blurred Line Of Photoshop In Advertising on *NPR*, *Colin McEnroe Show*, 1.16.13  
 Photo Retouching and Body Image on *CNN*, 8.12.12  
 North Korea Restores Order to Kim Funeral With Photoshop in *ABC News*, 12.29.11  
 From North Korea, an Altered Procession in *New York Times*, 12.28.11  
 Photo Retouching on *BBC World Service*, 12.20.11  
 New Technology to Catch Photoshop Fakes on *Marketplace*, 12.19.11  
 Exposing Digitally Doctored Photos in *Boston Globe*, 12.5.11  
 Retouching Reality in *TIME Magazine*, 11.30.11  
 They Aren't That Thin - Digital Retouching Gets Graded in *NPR*, *The Two-Way*, 11.30.11  
 Computer Model Spots Image Fraud in *Scientific American*, 11.29.11  
 The Secrets of Photoshop Unmasked in *The Independent*, 11.29.11  
 Software Reveals How Much Photos Have Been Retouched in *The Guardian*, 11.29.11  
 Digital Photo Retouching Quantified in New Metric in *PCWorld*, 11.29.11  
 Photoshopped or Not? A Tool to Tell in *New York Times*, 11.28.11  
 Digital Retouching: Physical Implausibility in *The Economist*, 11.28.11  
 Altered-image Ratings Tell You Just How Fake Photos Are in *New Scientist*, 11.28.11  
 New Forensic Details About Weingate Photo in *The New Republic*, 6.1.11  
 Dartmouth Prof, Microsoft, Facebook Chase Child Pornography in *Union Leader*, 5.27.11  
 Microsoft & Facebook Fight Child Porn on 97.3 *KIRO*, *Seattle*, 5.20.11  
 Facebook's New Way to Combat Child Pornography in *New York Times*, 5.19.11  
 Automating the Hunt for Child Pornographers in *New Scientist*, 4.6.11  
 Detecting Fake Photos with Digital Detective Work in *Columbia Journalism Review*, 3.23.11  
 Hany Farid vs. Photoshop in *Business Week*, 12.20.10  
 Daredevil Tip Toes Around Lava on *Good Morning America*, 10.5.10  
 Airbrush Alert: UK Wants to Keep Fashion Ads Real in *Associated Press*, 9.20.10  
 Can You Believe Your Eyes in the Digital World? in *BBC News*, 8.2.10  
 The Technology Behind Spying on *NPR*, *All Things Considered*, 7.1.10  
 Child Porn Too Big For Law Enforcement? in *The Christian Science Monitor*, 6.13.10  
 How to Spot a Doctored Photo in *Wired*, 5.5.10  
 Oswald: Beyond a Shadow of Doubt? in *Popular Mechanics*, 3.6.10  
 Luminous Point in the Eye? in *Der Spiegel*, 3.1.10  
 High Tech Child Porn Tracker on *NHPR*, *Word of Mouth*, 12.21.09

Microsoft Donates Weapon to Fight Child Porn in *Sydney Morning Herald*, 12.17.09  
 Microsoft and National Center for Missing & Exploited Children Push for Action to Fight  
 Child Pornography in *CNN Money*, 12.16.09  
 Microsoft Giving Software to Curb Child Porn in *USA Today*, 12.16.09  
 Dartmouth Scientist Says Oswald Rifle Photo Real on *Vermont Public Radio*, 11.24.09  
 Is That Picture Real? on *NH Chronicle*, 11.23.09  
 Video Manipulation on *KCBS*, 11.23.09  
 Can You Believe Your Eyes? in *New York Times, Upfront*, 11.23.09  
 JFK: The Conspiracy Myths on *Discovery Canada*, 11.22.09  
 Dartmouth Scientist Says Oswald Rifle Photo Real in *Associated Press*, 11.5.09  
 This Photo Is Lying to You in *Outside*, 9.1.09  
 Dartmouth Researcher Roots Out Fake Photographs in *Valley News*, 8.30.09  
 Professor: Photoshopping Person's Race Common on *NPR, All Things Considered*, 8.28.09  
 Faked Photographs: Look, and Then Look Again in *New York Times*, 8.23.09  
 Digital Forensics Susses Out True From False in *Computer Power User*, 6.1.09  
 Are the Photos of Borneo's Monster Snake Real? in *Scientific American*, 2.20.09  
 Photoshop Detective on *Studio 360*, 12.26.08  
 Real? Or Photoshopped? 'Airbrushing' Run Amok in *ABC News*, 12.19.08  
 The Digital Detective in *San Jose Mercury News*, 12.14.08  
 The Authenticity of Bin Laden Tapes on *Chicago Public Radio's Worldview*, 12.8.08  
 Did North Korea Fake Photos of Kim Jong-il? in *Scientific American*, 11.10.08  
 The Camera Never Lies... or Does It? on *Radio New Zealand*, 8.17.08  
 Photos as Weapons in *New York Times*, 8.11.08  
 In A Photoshop Age, Can You Believe Your Eyes? on *NPR, Talk of the Nation*, 7.23.08  
 Iran Doctors Missile of Photo Launch on *CNN*, 7.11.08  
 Tricks in Tehran: on *Southern California Public Radio*, 7.10.08  
 Detecting Digital Alterations in Media on *Vermont Public Radio*, 7.2.08  
 Profile: Hany Farid on *NOVA, Science Now*, 6.25.08  
 Tampered Photos on *PRI, The World*, 6.3.08  
 Journals Find Fakery in Many Images in *Chronicle of Higher Education*, 5.29.08  
 Digital Detectives on *NHPR, Word of Mouth*, 5.15.08  
 Identifying Manipulated Images in *MIT Technology Review*, 3.16.08  
 Researchers Look to Spot Photo Hoaxes in *The Associated Press*, 2.25.08  
 Photo Tech Complicates Child-Porn Cases in *The Associated Press*, 2.25.08  
 Digital Forensics: An Interview with Dr. Hany Farid in *The Digital Journalist*, 2.11.08  
 An End to Picture Perfect Frauds in *Discovery Channel Magazine*, 2.1.08  
 How Can You Tell if a Picture is Real? on *The Today Show*, 12.21.07  
 Was Bin Laden's Last Video Faked? on *3WT Talk Radio*, 10.31.07  
 Was Bin Laden's Last Video Faked? on *MSNBC*, 10.29.07  
 Digital Forensics on *BBC, Night Waves*, 10.17.07  
 Digital Photo Manipulation on *KMOX 1120*, 10.15.07  
 Proving That Seeing Shouldn't Always Be Believing in *New York Times*, 10.2.07  
 Digital Detectives Discern Photoshop Fakery in *The Christian Science Monitor*, 8.29.07  
 Restoring Trust in Photojournalism in *Black Star Rising*, 8.7.07  
 Distorted Picture in *American Journalism Review*, 7.30.07  
 Magazines' Extreme Touch-ups on *The Today Show*, 7.23.07  
 Photo Tampering an Age-Old Practice in *The Chronicle of Higher Education*, 6.27.07  
 Q&A: Hany Farid on Digital Manipulation in *Photo District News*, 6.1.07  
 Great Shots That Never Happened in *Washington Post*, 4.15.07  
 Computing Photographic Forgeries in *Science News*, 3.17.07  
 Adobe Tackles Photo Forgeries in *Wired News*, 3.8.07  
 Picture Imperfect in *Nature News*, 2.20.07  
 Science Fights the Fakes in *MSNBC*, 2.20.07  
 Surveillance: Video Evidence in *Newsweek International*, 1.15.07  
 Detecting Video Forgeries in *MIT Technology Review*, 11.29.06  
 Seeing is Believing? on *CBS News Sunday Morning*, 10.29.06  
 True Lies in *Current Science*, 10.20.06  
 True Renaissance by Computer in *Primo*, 9.2.06  
 Are Fake Videos Next? in *News.com*, 9.11.06  
 Digital Photo Manipulation, on *BBC Digital Planet*, 9.4.06  
 Keeping It Real, in *The Economist*, 8.17.06  
 Digital Art Authentication, on *NPR, 1370 Connection*, 8.11.06  
 Program to Detect Crimes of Image Forgeries, in *Al-Ahram*, 3.19.06

Photoshop Fakers, in *Now Toronto*, 3.15.06  
 The Hunt for Online Criminals in *Mass High Tech*, 2.20.06  
 Detecting Fraud in Journals in *The Scientist*, 2.10.06  
 A Digital Life on CNN, 2.2.06  
 Should Journals Police Scientific Fraud? in *Nature News*, 2.2.06  
 Smoking Out Photo Hoaxes in *News.com*, 1.31.06  
 Image Check for Scientific Journals in *Der Spiegel*, 1.30.06  
 It May Look Authentic; Here's How to Tell It Isn't in *New York Times*, 1.24.06  
 Technology Seen Abetting Manipulation of Research in *Boston Globe*, 1.10.06  
 Can Photos be Trusted in *Popular Science*, 9.1.05  
 Fakes, Frauds, and Fake Fakers in *ARTNews*, 6.1.05  
 Spotting a Digital Hoax on *The Discovery Channel*, 3.16.05  
 Digital Detectives Reveal Art Forgeries in *Computing in Science & Engineering*, 3.1.05  
 In The Photoshop Era, It's Harder To Trust Your Eyes in *USA Today*, 2.2.05  
 Seeing is No Longer Believing in *The Christian Science Monitor*, 2.2.05  
 Professors Who Are Changing the World in *New Hampshire Magazine*, 2.1.05  
 What Lies Beneath in *Art & Antiques*, 1.27.05  
 Photoshop Sleuths in *MIT Technology Review*, 1.17.05  
 Computers Increasingly Used in Crimes on *WMUR TV News*, 12.16.04  
 Art Forgeries (with John Myatt) on *BBC World Service*, 12.15.04  
 Digital Forensics on *NHPR, Front Porch*, 12.14.04  
 Debunking Photoshop Fakery in *New York Times (Year in Ideas)*, 12.12.04  
 Digital Art Authentication, in *ABC News, Australian Broadcasting Corporation, BBC Radio 4, BBC 5 Live, BBC World Service, Boston Globe, Baltimore Sun, CBC News, Charlotte Observer, Chicago Sun Times, Chicago Tribune, China Post, CNN, Jamaica Observer, Kansas City Star, Concord Monitor, Economist, Miami Herald, MSNBC, National Geographic, Nature, New Scientist, Newsday, Newsweek, New Zealand Herald, Philadelphia Inquirer, Radio Arthur, Rapid City Journal, Richmond Times, San Jose Mercury News, ScienCentral News, Science Magazine, Science News, Science Now, AAAS Science Update, Scientific American, Seattle Post Intelligencer, The Australian, The Globe and Mail, Times UK, Valley News, Voice of America, Washington Post, WCAX News, Wired News, and Yahoo News*, 11.23.04-11.25.04  
 Detecting Tampering in a Digital Photo on *Discoveries+Breakthroughs*, 10.26.04  
 Algorithm Detects Non-Watermarked Digital Forgeries in *Laser Focus World*, 10.1.04  
 What You See Is What You Question in *Computer Power User*, 10.1.04  
 Is It Real or Is It Photoshopped in *Discover Magazine*, 9.27.04  
 New Algorithm Foils Digital Forgers in *Yahoo! News*, 8.9.04  
 Doctored Digital Images on *NPR, Future Tense*, 7.27.04  
 A New Flavor of Digital Truth Serum, in *New York Times*, 7.22.04  
 Investigating Digital Images in *ACM TechNews, California Computer News, Haaretz, Justnet, OE Magazine, Online Security, PhysOrg, Science Blog, ScienceDaily, Slashdot, Topix.net, and U.S. Politics Today*, 7.1.04  
 Naked Eye Can't Tell If It's a Lie in *Poughkeepsie Journal*, 5.1.04  
 New Mathematical Algorithms Might Help Diagnose Cancer *The Breast Cancer Newsletter, HPC Wire, Medical News Today, and ScienceDaily*, 2.4.04  
 Is Seeing Believing in *The Telegraph*, 9.17.03  
 Is Seeing Believing on *BBC News*, 9.8.03  
 History Undercover with Arthur Kent: Cyberterrorism on *The History Channel*, 7.26.03  
 Mapping with Math in *BBC News*, 12.3.02  
 Mapping with Math in *The Geological Society, Innovations Report, OE Mag., ScienceDaily, and UPI*, 12.2.02  
 Molyneux Problem, in *Strange But True*, 7.17.02  
 Digital Tours of Murals, in *The Chronicle of Higher Education*, 7.9.02  
 Hidden Messages appearing on *WCAX TV News*, 10.19.01  
 Statistics Sniff Out Secrets appearing in *Technology Research News*, 9.26.01  
 Digital Secrecy appearing on *WNE TV News*, 8.15.01  
 Digital Secrecy in *GlobalTechnoScan, Popular Technologies, and ScienceDaily*, 8.10.01

#### INVITED TALKS

Digital Video Forensics, The Federal Judiciary Center, 6.17  
 Reigning in Online Abuses, Williams College, 5.17  
 Photo Forensics, Williams College, 5.17  
 Digital Image Forensics, Office of Research Integrity, 4.17

Digital Forensics: From Social Media to Social Impact, National Academy of Inventors, 4.17  
 Reigning in Online Abuses, Council of Engineering Systems Universities, 3.17  
 Photo Forensics, International Center of Photography, 12.16  
 Photo Forensics, Columbia University, 12.16  
 Combating On-line Extremism, United Nations, 11.16  
 Photo Forensics from Lighting and Shadows, Duke University, 3.16  
 How Realistic is Photorealistic?, Duke University, 3.16  
 Photo Forensics, Middlebury College, 10.15  
 Photo Forensics and Verification, TechRaking at MIT, 9.15  
 Photo Forensics, University of Wisconsin, Madison, 4.15  
 Photo Forensics from Shadows & Shading, SPIE Media Security, and Forensics (keynote), 1.14  
 Photo Forensics, University of Oregon, 1.14  
 Photo Forensics, University of California, Riverside, 1.14  
 Photo Forensics, University of Delaware, 9.13  
 Photo Forensics, International Conference on Computational Photography (keynote), 4.13  
 Image Manipulation in News, Computation + Journalism Symposium, 2.13  
 Digital Forensics, The World Bank, 6.12  
 Photo Retouching, Information Hiding (keynote), 5.12  
 Photo Forensics, Stanford University, 1.12  
 Ethics and Forensics in the Age of Photoshop Photojournalism, Massachusetts Institute of Technology, 4.11  
 Photo Forensics, National Geographic, 1.11  
 Photo Forensics: Lighting and Shadows, Harvard University, 9.10  
 Photo Forensics, Applied Perception in Graphics & Visualization (keynote), 7.10  
 Limitations of Visually-Based Image Forensics, Massachusetts Institute of Technology, 4.10  
 Photo Forensics, Massachusetts Institute of Technology, 4.10  
 Digital Image Forensics, Yale University, 4.10  
 Digital Image Forensics, IDGA Biometrics for National Security and Defense, 3.10  
 Visually-Based Image Forensics, IDGA Biometrics for National Security and Defense, 3.10  
 Photo Forensics, Smith-Kettlewell Eye Research Institute, 2.10  
 Digital Image Forensics, Adobe Inc, 1.10  
 Digital Image Forensics, University of Rochester, 11.09  
 On the Limitations of Visually-Based Image Forensics, University of Rochester, 11.09  
 Photo Forensics, Brown University, 10.09  
 Digital Forensics, Biometrics: Theory, Applications and Systems (keynote), 9.09  
 Digital Tampering and Forensics, University of California, San Diego, 4.09  
 Image Forensics, University of California, Berkeley, 3.09  
 Estimating and Modeling Complex Lighting Environments, University of Pennsylvania, 10.08  
 Digital Tampering and Forensics, National Institute of Standards, 10.08  
 Digital Tampering and Forensics, University of Massachusetts, Amherst, 10.08  
 Digital Image Forensics, American Society of Clinical Radiologists, 9.08  
 Digital Tampering and Forensics, SUNY Albany, 9.08  
 Digital Tampering and Forensics, Electronic Imaging Symposium (plenary talk), 1.08  
 Digital Image Forensics, The National Academies, 1.08  
 Digital Image Forensics, IBM Almaden, 11.07  
 Digital Image Forensics, University of California, Berkeley, 11.07  
 A Digital Technique for Art Authentication, Harvard University Art Museum, 10.07  
 Digital Image Forensics, Google, 4.07  
 Digital Image Forensics, Foveon Inc., 4.07  
 Exposing Digital Forgeries from Inconsistencies in Lighting, Carnegie Mellon University, 3.07  
 Digital Forensics, American Association for the Advancement of Science, 2.07  
 Digital Image Forensics, The Associated Press, 2.07  
 Exposing Digital Forgeries from Inconsistencies in Lighting, University of Pennsylvania, 2.07  
 Digital Tampering in the Media, Politics and Law, University of Pennsylvania, 2.07  
 Digital Image Forensics, Central Intelligence Agency, 12.06  
 From Photons to Pixels to Photoshop, Project Safe Childhood Conference, 12.06  
 Digital Image Forensics, Stanford University, 10.06  
 From Photons to Pixels to Photoshop, Crimes Against Children Conference, 8.06  
 Digital Image Forensics, Microsoft Corp., 6.06  
 A Digital Technique for Art Authentication, Rochester Memorial Art Gallery, 5.06  
 Digital Image Forensics, Eastman Kodak, 5.06  
 Digital Image Forensics, Google, 5.06  
 Digital Image Forensics, University of California, Davis, 5.06

Digital Image Forensics, National Academy of Sciences, 5.06  
 A Digital Technique for Art Authentication, San Diego Museum of Art, 3.06  
 A Picture is Worth a Thousand Lies, Dartmouth College, 2.06  
 Digital Image Forensics, Ricoh Innovations, 11.05  
 Energy vs. Synchrony in Perceptual Grouping, University of California, San Diego, 11.05  
 From Photons to Pixels to Photoshop, Delaware Department of Justice, 9.05  
 From Photons to Pixels to Photoshop, High Tech. Crime Investigation Assoc., 8.05  
 Digital Image Forensics, National Association of Attorneys General, 6.05  
 How Realistic is Photorealistic?, University of California, Santa Cruz, 6.05  
 Digital Image Forensics, University of California, Berkeley, 5.05  
 Digital Image Forensics, University of California, Santa Cruz, 5.05  
 Digital Image Forensics, National Association of Attorneys General, 5.05  
 Digital Image Forensics, Adobe Systems, 4.05  
 Digital Image Forensics, Office of Research Integrity, 1.05  
 Digital Image Forensics, University of New Hampshire, 12.04  
 Digital Image Forensics, New Hampshire Cyber Crime Network, 12.04  
 Digital Image Forensics, Leslie Center for the Humanities, Dartmouth College, 11.04  
 Reconstructing Ancient Egyptian Tombs, Society for Imaging Science and Tech., 10.04  
 Digital Image Forensics, Adobe Systems, 10.04  
 Digital Image Forensics, National Association of Attorneys General, 9.04  
 Digital Image Forensics, University of Pennsylvania, 7.04  
 How Realistic is Photorealistic?, University of Illinois, 4.04  
 Universal Steganalysis, Central Intelligence Agency, 2.04  
 How Realistic is Photorealistic?, The Salk Institute, 1.04  
 Grouping by Temporal Synchrony?, The Salk Institute, 1.04  
 How Realistic is Photorealistic?, Stevens Institute of Technology, 12.03  
 How Realistic is Photorealistic?, Massachusetts Institute of Technology, 11.03  
 How Realistic is Photorealistic?, Harvard University, 11.03  
 How Realistic is Photorealistic?, University of Chicago, 11.03  
 How Realistic is Photorealistic?, University of Maryland, 11.03  
 Grouping by Temporal Synchrony?, University of Chicago, 10.03  
 Mixing and Unmixing Digital Images, Harvard University, 10.02  
 Temporal Synchrony in Perceptual Grouping?, University of Rochester, 9.02  
 Mixing and Unmixing Digital Images, New York University, 4.02  
 Mixing and Unmixing Digital Images, University of Pennsylvania, 3.02  
 Digital Tampering, Washington University, St. Louis, 1.02  
 Digital Secrets, Boston University, 12.01  
 Grouping by Temporal Synchrony, Harvard University, 11.01  
 Blind Removal of Image Non-Linearities, Columbia University, 11.01  
 Blind Removal of Image Non-Linearities, Massachusetts Institute of Technology, 10.01  
 Grouping by Temporal Synchrony, New York University, 10.01  
 Grouping by Temporal Synchrony, Massachusetts Institute of Technology, 3.01  
 Grouping by Temporal Synchrony, University of Pennsylvania, 3.01  
 Grouping by Temporal Synchrony, Boston University, 2.01  
 Blind Removal of Image Non-Linearities, University of Pennsylvania, 3.00  
 Digital Image Separation, George Mason University, 3.00  
 Grouping in Temporally Synchronous Displays, Dartmouth College, 12.99  
 Separating Digital Images, Brooklyn Polytechnic University, 3.99  
 Separating Digital Images, Dartmouth College, 3.99  
 ICA for Separating Images, Massachusetts Institute of Technology, 2.99  
 Separating Images, University of Pennsylvania, 10.98  
 Monocular Stereo, Polaroid Inc, 7.98  
 Digital Image Enhancement, Williams College, 4.98  
 Monocular Stereo, Massachusetts Institute of Technology, 3.98  
 Range Estimation by Optical Differentiation, University of California, Berkeley, 3.97  
 A Differential Optical Range Camera, Sensor Inc., 11.96  
 Direct Differential Range Estimation, Columbia University, 5.96  
 Steerable Filters for Low-level Image Processing, SUNY at Albany, 11.95  
 3-D Scene Reconstruction for Telepresence, UNC, Chapel Hill, 6.94

MENTOR

Summer Robot Camp, Dartmouth College, 2004-2007  
 Gates Millennium Scholarship, Dartmouth College, 2000

Mellon Minority Scholarship, Dartmouth College, 2000  
Math Circle/Math Camp, 1998-2001, 2004  
NASA Quality Education for Minorities, U. of Penn, 1995-1996  
Philadelphia Math and Science Outreach, U. of Penn, 1994-1996

ASSOCIATE EDITOR IEEE Transactions on Information Forensics and Security, 2005-2008

PROGRAM COMMITTEE Workshop on Image Forensics, CVPR, 2017  
IEEE Workshop on Image Forensics (WIFS), 2017  
International Conference on Computational Photography, 2012-2015  
Information Hiding, 2010  
Media Security and Forensics (Electronic Imaging), 2009-2011  
Technical Advisory Board for Berkman's Internet Safety Task Force, 2008  
Vision of the Unseen (CVPR Workshop), 2008  
Statistical Learning in Computer Vision (ECCV Workshop), 2004  
American Association for Artificial Intelligence (Vision/Perception), 2004  
Statistical Analysis in Computer Vision (CVPR Workshop), 2003

REVIEWER NSF review panel (RI Small), 2013  
NSF review panel (ITR Medium), 2003  
NSF review panel (CAREER: RHA/CV), 2000, 2002, 2003  
NSF review panel (RHA/CV), 2000  
American Association for Artificial Intelligence (AAAI), Computer Analysis of Images and Patterns (CAIP), Computer Vision and Pattern, Recognition (CVPR), Electronics Letters, European Conference on Computer Vision (ECCV), IEEE Transactions on Image Processing, IEEE Transactions on Multimedia, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Signal Processing, IEEE Transactions on Information Security and Forensics, Information Hiding, International Conference on Computer Vision (ICCV), International Journal of Computer Vision, International Journal of Imaging Systems and Technology, Journal of Cognitive Neuroscience, Journal of the Optical Society of America, Journal of Visual Communication and Image Representation, Medical Physics, Perception, Proceedings of the Royal Society: Biological Sciences, SIGGRAPH, Vision and Applications, Vision Research

STUDENTS Shruti Agarwal, Ph.D. adviser  
Tiago Carvalho (2014), visiting Ph.D. student (UNICAMP, Brazil)  
Emma Chiu '19, research adviser  
Valentina Conotter (2011), Ph.D. co-adviser (University of Trento)  
Julia Dressel '17, senior thesis adviser  
Wei Fan, postdoctoral fellow  
Olivia Holmes '15, senior thesis adviser  
Daniel Hopkins '10, research adviser  
Kimo Johnson (2007), Ph.D. adviser  
Eric Kee (2013), Ph.D. adviser  
Jethro Rothe-Kushel '03, research adviser  
Siwei Lyu (2005), Ph.D. adviser  
Brandon Mader '16, research adviser  
David Martin '00, senior thesis adviser  
Kiley McEvoy '06, research adviser  
Joseph Pechter '04, senior thesis adviser  
William Pechter '04, senior thesis adviser  
Senthil Periaswamy (2003), Ph.D. adviser  
Coralie Phanord '16, research adviser  
Andrew Pierce '02, research adviser  
Alin Popescu (2005), Ph.D. adviser  
Nelson Rosa '06, research adviser  
Katherine Sherwin '01, research adviser  
Hai Sun (2004), Ph.D. co-adviser  
Sydni Topper '18, research adviser  
Joshua Wang '15, thesis adviser  
Weihong Wang (2009), Ph.D. adviser



Angela Zhu, research adviser

TEACHING

Data Structures and Analytics, Tuck School of Business, Spring 2017  
Fundamentals of Web Programming, Tuck School of Business, Spring 2017  
Introduction to Programming and Computation, CS 1, Fall 2016  
Fundamentals of Web Programming, Tuck School of Business, Spring 2016  
Numerical and Computational Tools for Applied Science, CS 70/170, Spring 2016  
Introduction to Programming and Computation, CS 1, Fall 2015  
Numerical and Computational Tools for Applied Science, CS 70/170, Spring 2015  
Introduction to Programming and Computation, CS 1, Fall 2014  
Introduction to Programming and Computation, CS 1, Spring 2014  
Introduction to Programming and Computation, CS 1, Spring 2013  
Digital Image Forensics, CS 89/189, Spring 2013  
Digital Forensics, University of Trento, Italy, Spring 2011  
Numerical and Computational Tools for Applied Science, CS 36/136, Summer 2008  
Concepts in Computing, CS 4, Summer 2008  
Numerical and Computational Tools for Applied Science, CS 36/136, Summer 2007  
Concepts in Computing, CS 4, Summer 2007  
Concepts in Computing, CS 4, Winter 2006  
Numerical Methods in Computer Vision, CS 88/188, Fall 2004  
Concepts in Computing, CS 4, Summer 2003  
Concepts in Computing, CS 4, Summer 2002  
Data Structures and Programming, CS 15, Winter 2002  
Data Structures and Programming, CS 15, Fall 2001  
Numerical Linear Algebra, CS106, Spring 2001  
Data Structures and Programming, CS 15, Winter 2001  
Data Structures and Programming, CS 15, Fall 2000  
Fundamentals of Image Processing, CS 88/188, Spring 2000  
Programming Languages, CS 68, Winter 2000  
Data Structures and Programming, CS 15, Fall 1999

COLLEGE  
COMMITTEES

Department Chair, 2015-2018  
Committee Advisory to the President (tenure & promotions), 2016-2019  
Department Associate Chair, 2004-2009  
Ph.D. Advisor, 2004-2006  
Steering Committee, Neuroscience Major, 2004-2008  
Director Search, Neukom Institute for Computational Science, 2005  
HHMI Undergraduate Biological Sciences Education Proposal, 2005  
Green Grid Computing, 2004-2005  
Computer Science Building Expansion, 2003-2005  
Faculty Search, Thayer School of Engineering, 2004  
Department Web Master, 1999-2004  
Faculty Recruiting, 2003, 2010-2011  
Ph.D. Admissions 2001-2003, 2010, 2012  
Associate Director Search, ISTS, 2002  
M.D./Ph.D. Admissions, 2001