

Society for Imaging Science & Technology

HONORS AND AWARDS 2013



imaging.org



April 2013

One of the pleasant functions of IS&T is to recognize those who have contributed to the field of imaging and to the Society. It is my privilege as president to announce this year's Honors & Awards recipients.

We recognize those who have made major contributions in the field of imaging and advanced the theory and application of imaging science. IS&T also recognizes members for their service to the Society and for their involvement and leadership in the Society's many activities. This year we have added a new award, the Image Engineering Award for Image Innovation, sponsored by Image Engineering GmbH & Co. KG, which recognizes and honors breakthrough innovations in digital imaging with an emphasis on image capture devices.

I want to thank Susan Farnand, the chair of IS&T Honors and Awards Committee, and the committee members for their diligence and dedication to the review and selection process. I also want to encourage all of you to participate in the nomination process this year. We rely on members and the volunteers involved with IS&T programs to identify and nominate candidates who are deserving of recognition for their contributions. A significant aspect of our awards is that they are based on peer recognition.

On behalf of IS&T, congratulations to this year's recipients. It is a pleasure to recognize them for their contributions to the field of imaging and to IS&T.

Yours sincerely,

Robert Buckley, IS&T president

<p>2013 IS&T Honors and Awards Committee Susan P. Farnand (RIT), chair Michael Brill (Datacolor) Carinna Parraman (University of the West of England) Shinri Sakai (The University of Tokyo) Eric Stelter (Lexmark International, Inc.)</p>	<p>2013 Image Engineering Innovation Award Committee Kenneth A. Parulski (aKAP Innovation, LLC), chair Mikio Watanabe (Fuji Photo Film Co., Ltd.) Donald Baxter (STMicroelectronics)</p>
<p>2013 HP Image Permanence Award Committee Daniel Burge (Image Permanence Institute), chair Joyce H. Townsend (Tate Britain) Joe LaBarca (Pixel Preservation International) Sarah Wagner (National Gallery of Art)</p>	<p>2013 Land Medal Award Committee Ross Mills (Vexajet LLC), chair Eunyoung Kim (Yonsei University) George Gibson (Xerox Corp.) Annette B. Jaffe (Annette Jaffe Consulting) Fredrik Laurell (Kungliga Tekniska Hogskolan) Lenore McMackin (InView Technology Corp.) Jannick P. Rolland (University of Rochester) Din Ping Tsai (National Taiwan University)</p>



Honorary Membership

the highest award of the Society, for outstanding contribution to the advancement of imaging science and engineering to

ALAN BOVIK

for his impact in shaping the direction and advancement of the field of perceptual image processing.

Al Bovik is a professor at The University of Texas at Austin, where he holds the Curry/Cullen Trust Endowed Chair and is director of the Laboratory for Image and Video Engineering (LIVE) in the Department of Electrical and Computer Engineering and Institute for Neuroscience. His research interests include image and video processing, computational vision, and visual perception.

Dr. Bovik has published more than 650 technical articles in these areas and holds two US patents. He is especially noted for his contributions to the field of image and video quality, and is the inventor or co-inventor of several leading models for predicting visual quality, including the SSIM and VIF image quality indices and the MOVIE video quality index. Algorithms utilizing Prof. Bovik's theories are used throughout the television industry to monitor and control signal quality. Recently his research laboratory produced groundbreaking blind image/video/3D quality models that operate without any need for a reference signal.

Dr. Bovik's several books include the recent companion volumes *The Essential Guides to Image and Video Processing* (Academic Press, 2009).

Dr. Bovik is the IS&T/SPIE 2011 Imaging Scientist of the Year. He has received a number of major awards from the IEEE Signal Processing Society, including: the Best Paper Award (2009), the Education Award (2007), the Technical Achievement Award (2005), and the Meritorious Service Award (1998). He also received the Hocott Award for Distinguished Engineering Research at the University of Texas at Austin, the Distinguished Alumni Award from the University of Illinois at Champaign-Urbana (2008), and the IEEE Third Millennium Medal (2000).



IS&T Fellowship

for outstanding achievement in imaging science or engineering to

SOS AGAIAN

for outstanding contributions to the fields of multimedia-imaging and security systems, including embedded data decryption processes and data hiding methods for mobile communications.

Dr. Sos Agaian is Peter T. Flawn Professor of Electrical and Computer Engineering at the University of Texas, San Antonio, and Professor at the University of Texas Health Science Center, San Antonio.

Dr. Agaian received his MS (summa cum laude) in mathematics and mechanics from Yerevan University, Armenia; his PhD in math and physics from the Steklov Institute of Mathematics, Russian Academy of Sciences; and the Doctor of Engineering Sciences from the Institute of the Control System, Russian Academy of Sciences. He has authored 7 books and more than 500 scientific papers, and holds 14 patents.

Dr. Agaian is a Fellow of both SPIE and AAAS. He serves as a foreign member of the Armenian National Academy. He is the recipient of MAESTro Educator of the Year, sponsored by the Society of Mexican American Engineers and Scientists, and actively supervises students at UTSA, Stanford University, and Tufts University. Dr. Agaian has made significant impacts to fundamental science, as recognized by the scientific community with Agaian's

Theorems, Agaian's Family, and Agaian's Matrix. The technologies he invented have been adopted across multiple disciplines, including the US government, and commercialized by industry.

He is an Editorial Board Member of the *Journal of Pattern Recognition and Image Analysis* and an Associate Editor for several journals, including the IS&T/SPIE *Journal of Electronic Imaging* and *IEEE System Journal*. His research interests are multimedia processing, imaging systems, information security and privacy system, computation and information processing, artificial intelligent, computer vision, 3D imaging sensors, fusion, biomedical, and health informatics.



IS&T Fellowship

for outstanding achievement in imaging science or engineering to

MOHAMMAD ALAM

for contributions in the areas of image processing, pattern recognition, and high-resolution image reconstruction.

Dr. Mohammad S. Alam is a professor and chair of the ECE Department at the University of South Alabama. He received his BS and MS in electrical engineering from Bangladesh University of Engineering and Technology (1983 and 1985), his MS in computer engineering from the Wayne State University (1989), and his PhD in electrical engineering from the University of Dayton (1992).

His research interests include image processing, pattern recognition, ultrafast computing, and renewable energy. He authored or co-authored 500+ publications, including 182 articles in refereed journals, 300+ conference publications, 25+ research project reports, 15 book chapters, and a book on IPTV (IEC Press). He has also edited a reference book of selected papers on JTC (SPIE Press) and many conference proceedings.

Dr. Alam has received numerous excellence in research/teaching/service awards including the 2005 Outstanding Scholar of the Year award from the USA Alumni Association, 2003 Scholar of the Year

Award from the Phi Kappa Phi Honor Society, and 1998 Outstanding Engineer Award from Region IV of IEEE.

Dr. Alam served/serves as the PI or Co-PI of many research projects totaling more than \$14M, supported by NSF, NASA, DoE, FAA, ARO, AFOSR, AFRL, SMDC, WPAFB, BP and ITT industry. He has given approximately 100 keynote/invited papers, seminars, and/or tutorials at international conferences and research institutions worldwide. He has also organized and chaired several international conferences and serves as a guest editor for a number of journals. He supervised the research work of 50+ Masters/PhD students and 22 post-docs and visiting scholars.

Dr. Alam is an elected Fellow of OSA, SPIE, IoP, and IET, and a Life Fellow of the Bangladesh Computer Society and the Institution of Engineers Bangladesh. Dr. Alam serves as an OSA Fellows Travelling Lecturer. Currently, he is the president of the Mobile Section of IEEE.



IS&T Fellowship

for outstanding achievement in imaging science or engineering to

FRANCISCO IMAI

for significant contributions to the advancement of color reproduction and multi-spectral imaging.

Dr. Francisco Imai is the senior manager of research of the computational imaging group, Imaging Systems Research Division at Canon U.S.A. Inc. Innovation Center in San Jose, CA.

Dr. Imai received his PhD in imaging science from Chiba University, Japan for work on color appearance in portraiture and applications for endoscopic imaging. After graduating in 1997, he joined Munsell Color Science Laboratory, Chester F. Carlson Center for Imaging Science at the Rochester Institute of Technology first as a post-doctoral fellow and later as senior color scientist working on multispectral imaging acquisition, processing, and printing.

In 2003, Dr. Imai joined industry, first at Pixim Inc., where he worked on high-dynamic range imaging and display, and later on human computer interaction research at Samsung R&D Center. Since 2009, he has been at Canon where he is involved in research and management of a team in the field of computational imaging.

Dr. Imai has authored two book chapters, 15 peer-reviewed journal papers, 42 peer-reviewed conference publications, and several granted US patents. He is active in conference organization activities for IS&T, SPIE, and OSA. He was the general co-chair for the 18th IS&T/SID Color and Imaging Conference; general co-chair for the 6th and 7th Digital Photography Conference that is part of the IS&T/SPIE Electronic Imaging Symposium; and the general co-chair for the 4th OSA Imaging Systems and Applications Meeting at the Imaging and Applied Optics Congress. Dr. Imai was the recipient of the 1998 IS&T Itek Award.



IS&T Fellowship

for outstanding achievement in imaging science or engineering to

GAURAV SHARMA

for significant and lasting contributions to color imaging.

Gaurav Sharma received his BE in electronics and communication engineering from the Indian Institute of Technology Roorkee, India (1990); his ME in electrical communication engineering from the Indian Institute of Science, Bangalore (1992); and MS in applied mathematics and PhD in electrical and computer engineering from North Carolina State University, Raleigh (1995 and 1996, respectively). From August 1992 through August 1996, he was a research assistant at the Center for Advanced Computing and Communications in the ECE Department at NCSU. From August 1996 through August 2003, he was with Xerox Research and Technology (Webster, NY), initially as a member of research staff and subsequently as a principal scientist. Since Fall 2003, he has been an associate professor at the University of Rochester.

Dr. Sharma's research interests include color science and imaging, multimedia security and watermarking, signal restoration, and bioinformatics. He is editor-in-chief for the IS&T/SPIE *Journal of Electronic Imaging* and the editor of the

Digital Color Imaging Handbook (CRC press).



IS&T Fellowship

for outstanding achievement in imaging science or engineering to

ROBERT ULICHNEY

for landmark contributions in the field of digital half-toning.

Robert Ulichney is a distinguished technologist at Hewlett-Packard Laboratories. Since joining HP Labs in 2002, his research activities have included image enhancement, low-bit depth rendering, projector luminance correction, display performance quantization, GPU implementations of error diffusion, and automatic correction of photo red-eye. He currently leads the development of methods to embed information in steganographic halftones as a more attractive alternative to barcodes, along with mobile means for data recovery.

Dr. Ulichney received his PhD from the Massachusetts Institute of Technology in electrical engineering and computer science, and a BS in physics and computer science from the University of Dayton. After receiving his degrees, Dr. Ulichney was with Digital Equipment Corp. where he focused on image and video implementations for both hard copy and display products. He introduced the widely used concept of blue noise to the signal processing community; the frequency domain metric of blue noise is so named because energy

dominates the high end of the spectrum, a property important for halftoning. From 1998-2002, he was with Compaq Computer Corporation's Cambridge Research Lab where he led a number of research efforts in video and image processing.

For a number of years he served as the general chair of the HP Imaging and Color Symposium, a technical conference for HP's printing and imaging engineers. He has served as technical sponsor for projects at several universities and on doctoral theses committees. Dr. Ulichney has 36 issued patents, along with a number of publications for contributions in a range of imaging areas, as well as a book published by MIT Press.



Senior Membership

for long-term service to the Society at the national level to

RICARDO MOTTA

for service as Vice-President of the society from 2000 to 2004, and help in organizing new conference tracks and serving in various programmatic and chairmanship positions for CIC, Archiving, and EI.

Ricardo Motta is a distinguished engineer at NVIDIA Corp, where as the Imaging CTO he is responsible for imaging technology and roadmap for the Tegra mobile products. He is a graduate of the Imaging and Photographic Science program at RIT, where for his thesis he developed the first colorimetric accurate CRT system. He joined Hewlett-Packard Laboratories in 1987 and was HP's first color imaging scientist, spearheading the development of HP's core color imaging products and technology, including the first color printers, copiers, cameras, and sRGB.

From 1996 to 1999, Mr. Motta was a chief architect for HP's imaging business, then the world's largest. In 1999, he left HP to start Pixim Inc., a pioneer in computational photography, where he was VP and CTO, leading the development of the first HDR video chipset. He is in the board of advisors of the Munsell Color Science Lab, and is a past vice president of IS&T. He joined IS&T in 1981 as student member.



Senior Membership

for long-term service to the Society at the national level to

THRASYVOULOS PAPPAS

for service as the Electronic Imaging Symposium General Chair in 2005 and Co-Chair of the EI "Human Vision and Electronic Imaging" conference, 1997-2013.

Thrasyvoulos N. Pappas is professor in the department of electrical engineering and computer science at Northwestern University. His research interests are in image and video analysis and compression, content-based retrieval, perceptual models for multimedia processing, model-based halftoning, and tactile and multimodal interfaces.

Dr. Pappas is a Fellow of IEEE and SPIE. He has served as chair of the Human Vision and Electronic Imaging Conference, which marked its 25th year in 2013, since 1997 and editor-in-chief of the *IEEE Transactions on Image Processing* (2010-2012).



Service Award

in recognition of service to a Chapter or to the Society to

DAVID FOSTER

for service as the Colour in Graphics, Imaging, and Vision (CGIV) program chair for 2010 and 2012.

David H. Foster is professor of vision systems in the School of Electrical and Electronic Engineering, University of Manchester, UK. He received his BSc and PhD in physics from Imperial College London, and DSc from London University. After completing his PhD, he was appointed lecturer at Imperial College and subsequently held full professorships at Keele University, Aston University, UMIST, and the University of Manchester. He is a fellow of the Institute of Physics, the Institute of Mathematics and Its Applications, and the Optical Society of America.

He has served on the management committees of the Colour Group of Great Britain and of the Applied Vision Association, of which he was chairman for ten years. He has served on the UK EPSRC Human Factors and People & Interactivity panels, and is currently a member of the EPSRC College. He is also a member of the Fellowship Panel of the Institute of Physics.

He co-founded the journal *Spatial Vision*, served as editor-in-chief for *Europe and*

Australasia for 10 years, and then as advisory editor for a further 15 years. He served as associate editor of *Computers in Biology and Medicine* for 18 years and as an editor and then senior editor of *Vision Research* for 10 years. He was appointed chairman and editor-in-chief of *Vision Research* in 2013.

Dr. Foster has published approximately 200 refereed journal articles on vision, color, imaging, statistics, and mathematical modelling.



Service Award

in recognition of service to a Chapter or to the Society to

THEO GEVERS

for service as Colour in Graphics, Imaging, and Vision (CGIV) 2012 General Chair.

Theo Gevers is a full professor of computer science at the University of Amsterdam, the Netherlands, and a (part-time) full professor at the Computer Vision Centre (UAB), Barcelona, Spain. At the University of Amsterdam he is teaching director of the MSc of Artificial Intelligence. He currently holds a VICI-award (for excellent researchers) from the Dutch Organization for Scientific Research (2008-2013) and a co-founder of ThirdSight B.V., a spin-off of the University of Amsterdam.

Dr. Gevers main research interests are in the fundamentals of colour image processing and computer vision, specifically in the theoretical foundation of photometric invariants, colour saliency, emotion recognition, and head pose estimation.

Dr. Gevers has scientific roots in two communities: colour (CGIV, CIC) and computer vision (ICCV, CVPR). In both communities he has been a chair of various conferences, actively involved in different programs, and has provided different tutorials. Notably, he is a general chair of the Internet Imaging Conference (SPIE

2005, 2006); the conference on Colour in Graphics, Imaging, and Vision (CGIV 2010, 2012); the IS&T/SPIE Electronic Imaging conference on Multimedia Content Access: Algorithms and Systems (2007, 2008, 2010); the tutorial chair of the conference on Multimedia & Expo (ICME 2005); and the poster chair of the conference on Colour in Graphics, Imaging, and Vision (CGIV 2006). He is the co-organizer of the First International Workshop on Image Databases and Multi Media Search (1996); the International Conference on Visual Information Systems (1999, 2005); and the Conference on Multimedia & Expo (ICME, 2005).

Dr. Gevers has published more than 150 papers on colour image processing, image retrieval and computer vision. He is program committee member of a various number of conferences, and an invited speaker/instructor at major conferences including ICCV, CVPR, ICIP, ICPR, ICIAP, EI, and CGIV.



Service Award

in recognition of service to a Chapter or to the Society to

DARYL HUNT

for establishing IS&T as the home to the ISO/TC42 Digital Photography Standards Program and for his leadership of the Standards Management Board Executive Committee.

Daryl R. Hunt has three decades of experience working in the photographic and imaging industries, including roles in manufacturing, engineering, and R&D. During the past decade, as director of standards strategy for Eastman Kodak Company, Mr. Hunt has managed industry standards participation, policy, process, and strategy across the company's diverse business and support functions. Mr. Hunt has been an active industry leader in driving and promoting standards and standardization. He has served on boards and policy committees of several standards development organizations, working to increase awareness and participation and establish coherent and rational standardization policies and procedures. He has recently completed his second term on the American National Standards Institute (ANSI) Board of Directors and has been active on ANSI's International and Intellectual Property Rights Policy Committees.

Mr. Hunt has been an active contributor to the ISO Technical Committee 42 (Photography) standards program, serving as chair of the Standards Management Board

and as an individual expert in WG18 Electronic Imaging. Mr. Hunt has also worked extensively with other industry leaders on global standards issues related to trade and regulatory policy.

Originally hired as an organic chemist after receiving a BS in chemistry from Syracuse University/SUNY Environmental Science & Forestry, Mr. Hunt studied computer science at Rochester Institute of Technology, and received an MS in engineering and management from Massachusetts Institute of Technology (1999). He has held a variety of management and technology leadership positions in software and imaging systems R&D, strategy, and planning.

A lifelong resident of Upstate New York, Mr. Hunt currently resides in Rochester, NY with his wife Michele and provides independent consulting on standards and open innovation strategy.



Service Award

in recognition of service to a Chapter or to the Society to

MARCEL LUCASSEN

for extensive efforts in managing the many details related to the successful technical and social programs at CGIV2012.

Marcel Lucassen received his MS in technical physics from Twente University (1988) and PhD in Biophysics (on color constancy) from Utrecht University (1993), both in the Netherlands. From 1993–2000, he worked with Akzo Nobel Coatings as a research scientist and group leader where his main focus was on the instrumental and visual characterization of automotive finishes, including effect coatings.

From 2000–2007, Dr. Lucassen was with TNO Human Factors, as a researcher and leader of the Vision Group, where he further specialized in visual and color perception in the context of applied research projects.

Since 2007, he has been an independent color scientist/consultant at Lucassen Colour Research where he works with companies on color related issues. He also holds a part-time position at the University of Amsterdam, where he integrates color perception with computer vision studies at the Intelligent Systems Lab.

Dr. Lucassen is an associate editor for *Color Research and Application*, and advisor to View on Colour – the Dutch Colour Foundation.



Service Award

in recognition of service to a Chapter or to the Society to

JOHN MERRITT

for chairing conferences on Stereoscopic Displays and related applications since the inception of the Electronic Imaging Symposium in 1988.

John Merritt, senior consulting scientist at The Merritt Group, is an internationally recognized authority in the design of user-interface displays and controls, especially for systems involving stereoscopic 3D visual perception used in visualization, medical imaging, night vision devices (NVDs), remote-sensing, remote-presence, telerobotics, education, and entertainment.

Mr. Merritt has been engaged in vision research and human factors engineering since 1974, serving as project director or principal investigator for a wide variety of visual performance studies related to display ergonomics and other areas listed above. He has worked extensively with, and conducted research on, many different stereo 3D image-interpretation display systems in the past four decades, dating back to his Navy service as a satellite reconnaissance photointerpreter and Air Intelligence Officer. This experience with a wide variety of techniques for obtaining and exploiting stereo 3D imagery (both video and film) has proved valuable for forensic work as an expert witness in cases involving stereo 3D systems.

From 1976–1989, he served as a consultant for the Naval Ocean Systems Center (NOSC) in the development and performance-test evaluation of teleoperator 3D video displays and helmet-mounted wide-field-of-view 3D video displays as part of their remote-systems research programs.

Mr. Merritt is the author of more than 30 technical reports and papers in the areas of safety research, visual displays, evaluation of stereoscopic 3-D systems for remote manipulation, image quality standards, visibility and illumination, photointerpretation, simulator displays, and visual fatigue.

He is a member of the Human Factors and Ergonomics Society, a Fellow of the SPIE, and is Founding Chair of the SPIE/IS&T Conference on Stereoscopic Displays and Applications (www.stereoscopic.org), held as part of the Electronic Imaging Symposium, which has been held annually in the Bay Area since 1990.

Service Award

in recognition of service to a Chapter or to the Society to

ROBERT STEVENSON

for chairing conferences at the Electronic Imaging Symposium related to Visual Communications and Image Processing since 1994.

Robert L. Stevenson received his BEE (summa cum laude) from the University of Delaware (1986), and PhD in electrical engineering from Purdue University (1990). While at Purdue, he was supported by a National Science Foundation Graduate Fellowship and a graduate fellowship from the DuPont Corporation.

Dr. Stevenson joined the faculty of the department of electrical engineering at the University of Notre Dame in 1990, where he is currently a professor. He also has a co-current appointment as a professor of computer science and engineering at the University of Notre Dame. He has held visiting positions at the University of Delaware, Intel Corporation, and the US Air Force Research Laboratory (Rome, NY).

Dr. Stevenson has served as an associate editor for *IEEE Transactions on Image Processing*, *IEEE Transactions on Circuits and Systems for Video Technology*, and the *IS&T/SPIE Journal of Electronic Imaging*.

Dr. Stevenson has served as chair, co-chair, and on the advisory committees of

several conferences on image and video processing. His research interests include image and video processing, restoration, compression, and enhancement. He has published more than 150 papers and contributed to seven books in his area of interest.



HP Image Permanence Award

sponsored by the Hewlett-Packard Company and given with participation of the IIC, for outstanding contributions that advance the longevity of photographic and fine art images created via modern digital methods to

YOSHIHIKO SHIBAHARA

for significant contributions to furthering the understanding of how modern print materials respond to forces of decay such as light, pollution, and humidity.

Yoshi Shibahara is senior technical manager at the R&D Management Headquarters of FUJIFILM Corporation. He obtained a master's degree in engineering from Japan's Kyoto University (1978) and subsequently joined FUJIFILM's research and development division.

Mr. Shibahara's work has primarily focused on the research and development of imaging materials such as silver halide photographic color negative films, color reversal films, inkjet media, inkjet ink, and xerographic photo-grade media. He has cultivated his technical background in design and evaluation of imaging materials and systems, and has contributed several papers related to image permanence at NIP and other imaging conferences. In addition, he participates in activities that encourage consumers to create photographic prints for archival purposes rather than storing images as digital data.

Mr. Shibahara has been a member of the ISO Technical Committee 42 (TC 42; Photography) since 1996 and has served as the head of delegates of Japan, an

expert of the ISO/TC 42/WG 5 (Working Group of physical properties and image permanence of photographic materials), and a project leader for important WG 5 projects related to image permanence.

Recently, Mr. Shibahara expanded his interests to electronic display by using his technical knowledge related to imaging science and technology. In 2012, he was appointed as the Secretary of IEC/TC 110, which focuses on international standards for electronic display devices. Through international standard activities in both photography and electronic display, Mr. Shibahara continues to exert significant efforts toward improving the quality of imaging materials and systems.



Edwin H. Land Medal

awarded by IS&T and OSA to recognize pioneering work empowered by scientific research to create inventions, technologies, and products, and to reflect Land's scientific intensity and curiosity in optics and imaging as inventor, scientist, entrepreneur, and teacher to

PABLO ARTAL

for scientific contributions to the advancement of diagnostic and correction alternatives in visual optics.

Pablo Artal, born in Zaragoza, Spain, received his PhD in physics from the University Complutense of Madrid, and was a post-doctoral fellow at the Institut d'Optique in Orsay, France and a senior researcher at the Instituto de Optica in Madrid. Since 1994, he has been a full professor of Optics at the University of Murcia, Spain.

Dr. Artal has spent several periods of his life doing collaborative research in laboratories in Europe, Australia, and the United States. He is a Fellow of OSA and ARVO; has published more than 150 reviewed papers that received 5,500 citations (h-index: 41); presented more than 150 invited talks at international meetings; and given approximately 120 seminars at different research institutions. He is also a co-inventor of 18 international patents in the field of optics and ophthalmology.

Dr. Artal pioneered a number of highly-innovative advances in methods used for studying the optics of the eye and has contributed substantially to our understanding of the factors that limit human visual reso-

lution. He is a pioneer in exploring the human eye with new technologies and designed new ophthalmic corrections. Several of his proposed solutions and instrument are currently in use in the clinical practice. For example, he co-invented intraocular lenses correcting for the corneal spherical aberration that provides improved quality of vision to millions of patients over the world.

Dr. Artal is the founder of Voptica SL a spin-off company developing the concept he invented of adaptive optics vision analyzers.

He has been the mentor of many graduate and post-doctoral students. His personal science blog is followed by graduate students, fellow researchers, and others from around the world. He has been editor of the *Journal of the Optical Society of America A* and the *Journal of Vision*.



Chester F. Carlson Award

sponsored by Xerox Corporation, Wilson Center for Research and Technology, recognizes outstanding work in the science or technology of electrophotography

EDWARD GUTMAN

for critical contributions in the realms of xerographic development and materials.

Edward Gutman holds a BS and MS from John Carroll University and a PhD from Iowa State University. After a post-doctoral research appointment at the University of Illinois, he joined Xerox Corporation where his research interests have focused on the physics of the xerographic development process and the science of xerographic developer materials. In 1989, Dr. Gutman received the Xerox President's Achievement Award for his contributions to the design of xerographic developer materials. He has patents on xerographic developer materials or devices. In 1992, he received IS&T Charles E. Ives Award for best technical paper. He was a Xerox Research Fellow when he retired in 2001.

Dr. Gutman is interested in the dialogue between science and religion and since his retirement has joined a group in Orinda, California that studies the compatibility between the two fields. As a member of this group he has given a yearly talk on the subject and been a visiting scholar at the Center for Theology and the Natural Sciences at the Graduate Theological Union in Berkeley, California.

Dr. Gutman also does volunteer tax preparation for the AARP and VITA programs.



Gutenberg Award

endowed by Hewlett-Packard Company for an outstanding technical achievement in, or contribution to, printing technology to

GUY ADAMS

for his invention of the Dyson Relay CMOS Imaging Device, which enables forensic validation of printed material.

Guy Adams is currently a principal researcher at Hewlett-Packard Laboratories in Bristol, UK. As the hardware lead of his group in the printing and content delivery lab, he is responsible for defining and leading research programs focused on transforming printing workflows. In his career he has worked in diverse positions, from his current role at HP to flight control system design for helicopters and to running an audio startup where along with other analog technologies he designed tube amplifiers.

He holds a Bachelor's degree in electronic systems and control engineering from Sheffield Hallam University (1985) and is a member of the IET (Ceng). His early contribution at HP (1996), developing CMOS image sensors, still has traces in the market today as a result of the successful development of a class leading embeddable and mobile imaging component—this business was split off from HP with the Agilent sale, then was sold on to Micron and finally Aptina, who are one of the primary suppliers of imaging chips in many of today's smartphones. He was then

instrumental in developing several PDA camera solutions for the Jornada/iPAQ teams. Next (2002), he worked on developing an optical digital pen and paper solution that subsequently lead to the basis of his current work in forensic printing. The development of a novel, high-resolution optical system has also enabled other members of the team to make contributions to the field of forensic printing and imaging.

Mr. Adams holds more than 18 issued patents.



Image Engineering Innovation Award

sponsored by Image Engineering, for efforts that lead to quality improvements or major positive changes in handling digital cameras and images through new technological features of cameras, innovative image processing, renewal of existing camera features, optimization of the user interface and camera handling, and/or simplifying or enhancing the use of images

REN NG, CHRISTIAN PERWASS, AND LENNART WIETKE

for introducing Digital Light Field Cameras

Ren Ng is the founder of Lytro, a startup in Mountain View that brought to market the first light field camera for consumers. Light field cameras introduce many revolutionary capabilities, including the ability to focus pictures after the shot is taken. The underlying technology is based on Dr. Ren's PhD dissertation on light field photography, which he completed at Stanford University's Computer Science Department (2006). Dr. Ren's dissertation won the ACM Doctoral Dissertation Award and Stanford's Arthur Samuel Award. Dr. Ren's leadership of Lytro also earned him a number of entrepreneurship honors, including Fast Company's "100 Most Creative People in Business" and MIT Tech Review's TR35 and "Entrepreneur of the Year".



Christian Perwass received his MSc in physics from the University of London, Royal Holloway College, UK (1996) and

his PhD in engineering from Cambridge University (1999). He then worked at the University of Kiel, Germany, as a postdoctoral researcher until 2006, where he received his habilitation degree. From 2006 until 2009, he worked at Robert Bosch GmbH in corporate research. In 2009, he founded Raytrix GmbH with Lennart Wietzke to develop lightfield cameras for industrial applications. Perwass is the author of many peer-reviewed publications and a book on geometric algebra.

Lennart Wietzke

was born 1976 in Kiel, Germany and founded his first company with his own laser display software at the age of 18.

After receiving a diploma in computer science and mathematics at the Technical University of Clausthal, Dr. Wietzke did research in the area of phase-based image analysis for the DFG



(German Research Foundation) in Kiel and received his PhD in engineering with the title "Algebraic Representation and Geometric Interpretation of Hilbert Transformed Signals".

In 2008, Dr. Wietzke co-founded the company Raytrix with the aim of developing and marketing 3D light field camera technology.

Dr. Wietzke's main interests are business, research, sports cars, lasers technology, sports, and traveling.



President's Citation

given at the discretion of the IS&T President, in recognition of outstanding long-term contributions and dedication to the achievement of the Society's objectives. Nominations for this award do not go through the H&A committee, but are made directly to the IS&T President.

JOANNE WEBER

for research achievements in super-resolution imaging.

Joanne Weber joined IS&T in 1968. She has served as the Rochester Chapter's recording secretary since 1973, as well as its ad hoc historian. In the latter role, Ms. Weber wrote an account of the history of the Chapter, which began as a technical section of Photographic Society of America (PSA) in 1937; PSA and the Society of Photographic Engineers (SPE) merged in 1957 to form the Society for Photographic Scientists and Engineers (SPSE), later IS&T.

Ms. Weber received a Senior Membership Award in 1995 in recognition of her many years of activity at national and local level, and a Service Award in 1980.

Ms. Weber retired from Eastman Kodak Company after 40 years in research and development and enjoys the company of her four cats.



Raymond Bowman Award

established by the Tri-State Chapter, for excellence in imaging education to

JUSSI PARKKINEN

for his contributions to the development and execution of the Master CIMET course project, his proven excellence in teaching within this course, and his extensive efforts to foster excellence in the scientific and academic worlds.

Jussi Parkkinen is professor and head of discipline of electrical and computer systems engineering at the Monash University Sunway Campus, Malaysia. His research fields are spectral color and lighting science, especially using machine learning methods.

Prof. Parkkinen received MSc in physics (1982) and PhD in mathematics (1989), from the University of Kuopio, Finland. After receiving his degree he was a visiting researcher at the University of Iowa (1989-1990); visiting professor at the University of Saskatchewan, Canada (1990); professor of computer science at the University of Kuopio, Finland (1991-1992); professor of information processing (1992-1998); and dean of the department of information technology at the Lappeenranta University of Technology, Finland (1995-1998). Since 1999, he has been a professor of computer science, head of the Department of Computer Science (1999-2005), dean of faculty of science (2006-2007), and vice rector for research (2007-2009) at the University of Joensuu, Finland. Since 2007, he has

been visiting professor at the Chiba University, Japan and, since 2012, guest professor at the Tongji University, China.

Prof. Parkkinen is a founding professor of the CIMET Erasmus Mundus MSc program, which combines color science and informatics. He is also a founding professor of IMPIT, an international MSc program and the CBU, Finnish-Russian Cross Border University MSc program in information technology.

In 1995-1999, Dr. Parkkinen was chairman of the Finnish Pattern Recognition Society; he is a fellow of the International Association of Pattern Recognition (IAPR). He was the chairman of the CIE TC8-07 technical committee on Multispectral Imaging (2004-2008) and served as general chair (2010) and program chair (2008) for IS&T's CGIV.

Prof. Parkkinen has published more than 70 scientific journals and numerous conference articles, mostly in the field of color science and pattern recognition.



Charles E. Ives/Journal Award

in recognition of the best engineering paper published in the Journal of Imaging Science and Technology the preceding year to

KYOJI MATSUSHIMA, HIROHITO NISHI, AND SUMIO NAKAHARA

for "Simple wave-field rendering for photorealistic reconstruction in polygon-based high-definition computer holography," JEl 21 (2) 023002 (2012)

Kyoji Matsushima received his PhD in applied physics from Osaka City University (Japan). He joined the department of electrical engineering and computer science at Kansai University as a research assistant in 1990, and is currently a professor in department of electrical and electronic engineering in the same university. Dr. Matsushima was a researcher in the field of quantum optics and lasers. He started his research project on computer-generated holograms in 1998. His current research interests include 3D imaging based on computer holography and numerical simulations in wave optics.

Hirohito Nishi received his ME in electrical engineering from Kansai University; he was a graduate student of Kansai University when the noted paper was submitted. Currently, Mr. Nishi works for Sumitomo Electric Industries,



Ltd. His current interests include 3D imaging based on computer holography and fabrication of optical elements.

Sumio Nakahara is an associate professor in the department of mechanical engineering at Kansai University, Japan. He received his PhD from Osaka University (1987). He joined the department of mechanical engineering at Kansai University as a research assistant in 1974. He went on to an adjunct professor position at Washington State University in 1993–1994.

Dr. Nakahara's current research interests are in the development of laser direct-write lithography technology for computer-generated holograms, laser micro processing and MEMS technology.



Itek Award

in recognition of the best student publication in an IS&T journal the preceding year to

MARIA YANEZ, JULIO RINCON, POLETTE CORTEZ, NAVINA GÜNTHER, THOMAS BOLAND, AND CARMELO DE MARIA

for "Printed Cellular Scaffold Using Self-Crosslinking Agents," JIST 56(4) 040506-1–040506-5 (2012).

Maria Yanez is a PhD student in materials science and engineering at The University of Texas at El Paso (UTEP). She received a BS in materials engineering from Instituto Tecnológico de Chihuahua (2006) and currently works as a staff scientist for Tevido Biodevices LLC. Ms. Yanez worked for three years as a research assistant in the UTEP Printed Biomaterial Laboratory in the Metallurgical and Materials Department under the direction of Dr. Thomas Boland. Her research is in tissue engineering, which highly interdisciplinary and involves collaborators within UTEP as well as outside the university. She is actively working on developing animal testing protocols, as well as survival skin grafting surgery. Ms. Yanez's conference talks include "Printable Biological Ink on Gelatin for Self Crosslinking Wound Dressings" and "Novel Printable Skin Graft to Treat Chronic Wounds." Her work was published in a special section on Digital Fabrication in the *Journal for Imaging Science and Technology*. She hopes to graduate in spring 2013 with her dissertation titled "Printable Biodegradable Hydrogel for Skin Wound Dressing Using Inkjet Printing Technology".



Julio Rincon received his BS in mechanical engineering from UTEP. He then pursued his MS in interdisciplinary sciences with a biomedical concentration, during which time he collaborated on the design of a bioprinter currently used by Tevido Biodevices. He is pursuing his PhD in materials and science engineering, engaged in re-search with molecular imprinting and ongoing development for the next generation bioprinter. He has presented his work at conferences and universities.



Polette E. Cortez graduated from UTEP (2011) with a BS in mechanical engineering. As an undergraduate, Ms. Cortez

was awarded the Presidential Excellence Scholarship and the US Steel Engineering Scholarship and the LSAMP Fellowship (2010 and 2011). Ms. Cortez is currently focused on the development of a prosthetic foot to be used in developing countries as part of her thesis work under the direction of Dr. Roger Gonzalez. Ms. Cortez looks forward to receiving her MS in 2013.



Navina Günther studies life science engineering at the University of Applied Sciences in Berlin. In 2011, she completed an internship at UTEP under Dr. Thomas Boland's

direction in the Printed Biomaterial Laboratory. She is currently writing her bachelor's thesis at the Julius-Wolff-Institute, Charité – Universitätsmedizin Berlin in the field of musculoskeletal regeneration with focus on the influence of cyclic loading on the differentiation of MSCs in a macro-porous scaffold.



Thomas Boland is a professor in the UTEP Department of Metallurgy and Materials Engineering and the director of UTEP's Biomedical Engineering Program. He

received his BS in chemical engineering from the Ecole Nationale Supérieure d'Ingénieurs de Génie Chimique (Toulouse, France, 1990) and his PhD in chemical engineering from the University of Washington (1995). He was a Postdoctoral Fellow at Pennsylvania State University and at the Naval Research Laboratory. He joined Clemson University (1999) as assistant professor and received tenure in 2005. He is an adjunct professor at Texas Tech University. Prior to heading up the UTEP BME program, Dr. Boland was the Director of a NSF/NIH funded Bioengineering and Bioinformatics Summer Institute, whose primary mission is to introduce senior undergraduate and junior graduate students with science and engineering backgrounds to the interdisciplinary research projects in the bioengineering and bioinformatics areas. Dr. Boland's research interests are applying engineering principles to automate, predict, and build 3D structures that show biological function. He has received numerous awards, is the author of more than 45 publications, including 3 invited reviews and chapters, and he has delivered more than 25 invited talks. He is a member of AVS, MRS, IS&T, and the Tissue Engineering and Regenerative Medicine International Society (TERMIS).

Carmelo De Maria is a post-doc researcher at the Research Center "E. Piaggio" University of Pisa. He received his PhD in chemical and material engineering at University of Pisa (2012), working on the development of a new microfabrication technique for tissue engineering applica-



tion. In particular, he studied the feasibility to fabricate scaffold for locomotor tissue engineering following the indirect microfabrication approach using mould, built with

low melting point materials, and two different techniques, continuous flow, and inkjet printing. At present, his research is focused on the fusion of different additive manufacturing technologies, such as hydrogel plotting, inkjet printing, and electrospinning.



Raymond Davis Scholarship

granted to an imaging science or engineering student for use in continuing graduate or undergraduate studies to

ANNA LABNO

for research achievements in super-resolution imaging.

Anna Labno is a final-year biophysics PhD student in the group of Prof. Xiang Zhang at the University of California, Berkeley. She holds a BS in physics and a BS in biology from the Massachusetts Institute of Technology. Ms. Labno's interests are in developing novel optical imaging systems to study complex physical and biological structures. During her time at MIT, Ms. Labno developed the first framework for the description of synthetic biological parts and used optical tweezers to investigate the mechanism by which kinesin generates the force of the walking stroke. Recently

she has developed a novel optical imaging technique to image electromagnetic fields with nanometer resolution and is currently working on a new technique to image true three-dimensional topology with nanoscopic resolution in ambient conditions



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