Mark D. Fairchild

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Education:

Ph.D., March, 1990 M.A., May, 1989
University of Rochester, Center for Visual Science

M.S., May, 1986 B.S. with Highest Honors, May, 1986
Rochester Institute of Technology, Center for Imaging Science

Appointments:

August 2010 - present
Rochester Institute of Technology
Associate Dean for Research &
Graduate Education, College of Science
Professor, Center for Imaging Science
Color Science Graduate Coordinator, 2008 - 2011

July 1999 - August 2010
Rochester Institute of Technology
Professor, Center for Imaging Science
Director, Munsell Color Science Lab, 1996 - 2008
Xerox Professor of Color Science, 2003 - 2006

July 1997 - Aug. 1998
Cornell University
Visiting Associate Professor
Program of Computer Graphics

July 1994 - June 1999
Rochester Institute of Technology
Associate Professor, Center for Imaging Science
Color Science M.S. Coordinator, 1991 - 1994
Imaging Science Ph.D. Coordinator, 1994 - 1996
Director, Munsell Color Science Lab, 1996 - 1999

July 1990 - June 1994
Rochester Institute of Technology
Assistant Professor, Center for Imaging Science
Awarded Tenure: September 1993

July 1986 - June 1990
Rochester Institute of Technology
Instructor, Center for Imaging Science

March 1986 - May 1986
Rochester Institute of Technology
Adjunct Faculty, Department of Color Science

Sept. 1983 - May 1986
Rochester Institute of Technology
Research Assistant, Munsell Color Science Lab

Student Assistant, Chemistry Library
Mathematics & Physics Tutor, Special Services

Biographical Sketch:

Mark Fairchild was born and raised in Trumansburg, New York where he graduated with honors from C.O. Dickerson High School. He came to Rochester Institute of Technology as a freshman in the Photographic Science program. Four years later he completed the requirements for the B.S. and M.S. degrees in that program, which had been renamed Imaging Science. He was a research assistant to Dr. Franc Grum in the newly formed Munsell Color Science Laboratory. Upon completion of his B.S. and M.S. degrees, he joined the Department of Color Science at R.I.T. and currently holds a tenured faculty position in the Center for Imaging Science, which houses the Munsell Color Science Laboratory. He undertook a Ph.D. program in Vision Science at the University of Rochester while continuing his work at R.I.T. and completed his degree in the spring of 1990. From 1996 to 2008, he was Director of the Munsell Color Science Laboratory, overseeing significant growth and the move to the Color Science building. In 2010, he was appointed Associate Dean for Research and Graduate Education of RIT's College of Science. Dr. Fairchild has been actively involved in research in the areas of colorimetric measurement and standardization, color perception, color vision, color-appearance modeling, digital color reproduction, image quality, and computer graphics. He has authored more than 225 papers, presentations, and technical reports in those areas. He has also supervised the graduate research of over 50 M.S. or Ph.D. students. The second edition of his book, *Color Appearance Models*, was published in 2004, following on the publication of the successful first edition in 1997. He spent the 1997-98 academic year on sabbatical leave as a Visiting Associate Professor in Cornell University's Program of Computer Graphics. Additional activities, honors, and awards are listed below.

Professional Affiliations:

ISCC (Inter-Society Color Council)

Co-Chair, IG #II, Appearance, Vision, & Modeling, 1991-1992
Chair, IG #I, Basic & Applied Color Research, 1992-1995
Board of Directors, 1995-1998
Chair, 67th Annual Meeting, 1998 (with OSA)
Program Committee, 2nd Panchromatic Conference, 2000
Macbeth Award Committee, 2004-Present

OSA (Optical Society of America)

Senior Member, 2010
Voting Delegate to ISCC, 1990-Present
Delegate to CIE, 2003-Present
Councilor, Rochester Section, 1996-1997

USNC - CIE (Commission International de L'Éclairage)

Chair, TC1-34, Testing Colour Appearance Models, 1991-1999
Reporter, R1-24, Colour Appearance Models, 1999-2003
Reporter, R8-05, Image Appearance, 2003-2008
Reporter, R8-08, Image Appearance Model Framework, 2008-2010
Member, TC1-27, Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparisons, 1990-Present
Member, TC1-48, Revision of CIE Document 15.2 Colorimetry, 1997-2004
Member, TC1-52, Chromatic Adaptation Transforms, 1998-2005
Member, TC1-55, Uniform Colour Space for Industrial Colour Difference Evaluation, 2005-Present
Member, TC1-56, Improved Colour Matching Functions, 1999-2009
Member, TC1-60, Contrast Sensitivity Function for Detection and Discrimination, 2002-Present
Member, TC1-75, A Comprehensive Model of Colour Appearance, 2009-Present
Member, TC8-01, Colour Appearance Modeling for Colour Management Applications, 1998-2005
Member, TC8-02, Colour Difference Evaluation in Images, 2000-Present
Member, TC8-03, Gamut Mapping, 1998-2006
Member, TC8-08, Testing of Spatial Color Appearance Models, 2003-Present
Member, TC8-10, Office Lighting for Imaging, 2006-Present
Member, TC8-11, CIECAM02 Mathematics, 2007-Present

SID (Society for Information Display)
Technical Co-Chair, IS&T/SID Color Imaging Conference, 1994
Technical Committee, IS&T/SID Color Imaging Conference, 1994-2004
CORM (Council for Optical Radiation Measurements)
IS&T (Society for Imaging Science and Technology)
Technical Committee, SPIE/IS&T EI Image Quality & System Performance Conference, 2003-Present
Color Imaging Editor, J.Im.Sci.Tech., 1999-2002
Scientific Technical Committee, CGIV 2002, 2008
General Chair, PICS Conference, 2003
Image Science Track Chair, International Congress of Imaging Science, 2006
ACM-SIGGRAPH (Association for Computing Machinery-Special Interest Group on Graphics)
Program Committee, Symposium on Applied Perception in Graphics and Visualization, 2006-Present
IEEE
Transactions on Image Processing, Associate Editor, Special Issue on Color, 1997
Workshop on Color and Photometric Methods in Computer Vision, Program Committee, 2003
Multispectral Color Science
Technical Committee, 2001
International Workshop on Video Processing and Quality Metrics
Technical Program Committee, 2006-Present
American Society of Cinematographers
Member, Technology Committee Advanced Imaging Group, 2004-Present
TASCII (Tsinghua University Art & Science Research Centre, Color & Imaging Institute)
Member, TASCII Advisory Board, 2010-Present
HCCB (Houston Center for Biomaterials and Biomimetics of The University of Texas Dental Branch at Houston)
Adjunct Senior Scientist, 2011-Present

Honors, & Awards:

2010 Senior Member (Optical Society of America)
2008 Raymond C. Bowman Award (IS&T)
2007 Davies Medal (Royal Photographic Society)
2003 Fellowship, Society for Imaging Science & Technology (IS&T)
2002 Macbeth Award (Inter-Society Color Council)
1995 C. James Bartleson Award (The Colour Group of Great Britain)
Best Paper Award, *VPQM 2010 - International Workshop on Video Processing and Quality Metrics* (Fairchild)
Best Paper Award, *2007 ITE/SID International Display Workshops* (M. Sakurai *et al.*)
Best Poster Presentation, *2007 IS&T/SID Color Imaging Conference* (Fairchild)
Best Poster Presentation, *2004 IS&T/SID Color Imaging Conference* (R.Patil, Fairchild and Johnson)
10-Year Author Award, *2002 IS&T/SID 10th Anniversary Color Imaging Conference*
Best Poster Presentation, *1997 IS&T/SID Color Imaging Conference* (G.Braun and Fairchild)
Best Poster Presentation, *1995 IS&T/SID Color Imaging Conference* (K.Braun and Fairchild)
HDR & Other Images in the RPS Collection of the National Media Museum (Bradford, UK)
Xerox Distinguished Lectureship
NYSTAR-CEIS Technology Transfer Award
IBM Faculty Award
Du Pont Young Professor Grant
Numerous Industrial & Government Research Grants & Contracts
SPSE (IS&T) Raymond Davis Scholarship
NALC William C. Doherty Scholarship
National Merit Letter of Commendation
New York State Regents Scholarship
Highest Avg. in Mathematics, Greatest Proficiency in Science (C.O. Dickerson High School)

Graduate Students Supervised, Topics:

Amy North, Investigation of Observer Variability in Color Matching Functions
Mike Stokes, Colorimetric Tolerances of Digital Images
Brian Rose, Color Logic: Interactively Defining Color in the Context of Computer Graphics
Nathan Moroney, Color Space Selection for JPEG Image Compression
Elizabeth Pirrotta, Testing Chromatic-Adaptation Models Using Object Colors
Audrey Lester, Color Reproduction of CRT-Displayed Images as Projected Transparencies
Mike Mongeon, Image Transformation into Device-Independent Color ...
Rick Alfvin, Computational Analysis of Observer Metamerism in Cross Media Color Matching
Susan Farnand, Effect of Image Content on Color Difference Perception
Karen Braun, Color-Appearance Modeling for Cross-Media Image Reproduction
Cathy Daniels, Effect of Surround on Perceived Lightness Contrast of Pictorial Images
Dalei Huang, Monte Carlo Simulation of 2AFC Experiments
Jack Rahill, Sensitivity Analysis of Nayatani's Color Appearance Model
Chris Hauf, Iris Explorer Modules for Color Appearance and Reproduction
Alex Vaysman, Color Image Quantization and Spatial Resolution
Mihai Cuciurean-Zapan, Color Preference Reproduction of Ink-Jet Prints
Garrett Johnson, High-Resolution Spectral Computer Image Synthesis
Fritz Ebner, Preferred Color Reproduction, Gamut Mapping, and Constant Hue Perception
Mark Shaw, Evaluation of Color Matching Functions and Observer Metamerism
Barb Grady, Illuminant Sensitivity of Printing Materials
Richard Suorsa, Color Identification under Simulated Chromatic Illumination
Kathy Loj, Impact of ICC Monitor Profile Settings on Printed Images
Jonathan Phillips, Evaluation of S-CIELAB using Halftone Color Patches
Gus Braun, Color Gamut Mapping Algorithms
Susan Lubecki, Performance Testing of ICC Profiles,
Sharron Henley, Color Appearance for Cross-Media Comparisons in Mixed Adaptation
Sergio Gonzalez, Fluorescence Spectrophotometry of Printing Materials
Michael Sanchez, Lightness of Chromatic Video Colors
Sun Ju Park, Black-Point Adaptation
Meredith Graham, Color Image Quantization
Jason Gibson, Color Discrimination in Images on Various Displays
Barb Grady, Ink Jet Ink Optimization
Scot Fernandez, Color Preference Reproduction
Anthony Calabria, Image Contrast Perception and Modeling
Jason Babcock, Eye-Movements in Color Imaging Psychophysics
David Robinson, Psychophysical Red on EP Prints
Garrett Johnson, Image Quality Metrics
Scot Fernandez, Measuring Preferences with an Image Difference Metric
Qun Sun, Spectral, Portraiture and Image Quality
Xiaoyun Jiang, Illuminant Estimation Algorithms
Xiaoyan Song, Chromatic Noise Perception and Modeling
Rohit Patil, Image Rendering for Print Simulation
Jim Leland, Image Processing Bi-Spectral Fluorescence Matrices
Jim Hewett, Computing the appearance of Mars Rover Images
Tim Hattenberger, Augmented Reality and Image Difference Perception
Joseph Stellbrink, Visual Masking of Display Defects
Jiangtao Kuang, High-Dynamic-Range Image Tone Mapping
Ken Fleisher, Perceptual Image Categories
Hongqin Zhang, Visualization of Spectral Image Information
Abhijit Sarkar, Assessment of Moving Image Quality
Stacey Casella, Expansion of Content to Fill WCG Displays
Rod Heckaman, Perceptual Color Gamuts and Brilliance
John Grim, Review of Gamut Mapping

Susan Farnand, Image Content in Image Quality Assessment
Ping-Hsu Chen, Lightness Perception Above Diffuse White
Hao Li, Brightness-Colorfulness Trade-Offs for Display Primaries

Publications In Preparation:

M.D. Fairchild, *The Color Curiosity Shop*, MDF, Honeoye Falls, in preparation (2011).

H. Li and M.D. Fairchild, Appearance-based primary design for displays, *IS&T/SID 19th Color Imaging Conference*, San Jose, submitted (2011).

D.L. Long and M.D. Fairchild, Optimizing spectral color reproduction in multiprimary digital projection, *IS&T/SID 19th Color Imaging Conference*, San Jose, submitted (2011).

Books:

M.D. Fairchild, *The HDR Photographic Survey*, MDF, Honeoye Falls, (2008).

M.D. Fairchild, *Color Appearance Models, Second Edition,* Korean Translation, Sigma Press, Seoul (2007).

M.D. Fairchild, *Color Appearance Models, Second Edition,* Wiley-IS&T Series in Imaging Science and Technology, Chichester, UK (2005).

M.D. Fairchild, *Color Appearance Models,* Addison-Wesley, Reading, MA (1998).

Internet Resources:

The HDR Photographic Survey, <mcsl.rit.edu/fairchild/HDR.html>.

Color Curiosity Shop, <whyiscolor.org>.

Ask A Color Scientist, <mcsl.rit.edu/outreach/faq.php>.

Publications & Presentations:

R.L. Heckaman and M.D. Fairchild, Brighter, more colorful colors and darker, deeper colors based on a theme of brilliance, *Color Research and Application* **35**, in press (2011).

D.L. Long and M.D. Fairchild, Reducing observer metamerism by spectral color reproduction in digital projection, NAB Annual Meeting, Las Vegas (2011)

M.D. Fairchild and P.-H. Chen, Brightness, lightness, and specifying color in high-dynamic-range scenes and images, *SPIE/IS&T Electronic Imaging Conference*, Vol. **7867** San Francisco, 78670O-1 -78670O-14 (2011).

M.D. Fairchild, Stimulating future color imaging scientists and engineers, *IS&T/SID 18th Color Imaging Conference*, San Antonio, 38-41 (2010).

M.D. Fairchild, Still photography throwdown: Silver halide vs. silicon, *IS&T/SID 18th Color Imaging Conference*, San Antonio, 154-159 (2010).

M.D. Fairchild and D.R. Wyble, hdr-CIELAB and hdr-IPT: Simple models for describing the color of high-dynamic-range and wide-color-gamut images, *IS&T/SID 18th Color Imaging Conference*, San Antonio, 322-326 (2010).

P.-H. Chen, M.D. Fairchild and R.S. Berns, Scaling lightness perception and differences above and below diffuse white, *IS&T/SID 18th Color Imaging Conference*, San Antonio, 42-48 (2010).

C.P. Sisson, J. Witwer, M.D. Fairchild, and J.B. Pelz, Color variability analysis in fundus photography, 41st Annual Meeting and Educational Program, Ophthalmic Photographers' Society, Chicago (2010).

J. Kuang, R.L. Heckaman, and M.D. Fairchild, Evaluation of HDR tone mapping algorithms using a high-dynamic-range display to emulate real scenes, *Journal of the Society of Information Display* **18**, 461-468 (2010).

I. Katayama and M.D. Fairchild, Quantitative evaluation of perceived whiteness based on a color vision model, *Color Research and Application* **35**,410-418 (2010).

G.M. Johnson, X. Song, E.D. Montag, and M.D. Fairchild, Derivation of a color space for image color difference measurement, *Color Research and Application* **35**, 387-400 (2010).

M.D. Fairchild, Color appearance models and complex visual stimuli, *Journal of Dentistry*, **38**, s2, e25-e33 (2010).

M.D. Fairchild, Accurately recording images of nature and reproducing our perceptions, *Representing Reality: Imagery in the Cognitive, Social and Natural Sciences*, Buffalo, (2010).

M.D. Fairchild, *Metameric Blacks: A Color Curious Column*, ISCC News #445 - Present (2010-Present).

M.D. Fairchild, The perceptibility of video artifacts: A perspective from color science, *5th International Workshop on Video Processing and Quality Metrics (VPQM)*, Scottsdale, Paper 65 (2010).

R.L. Heckaman and M.D. Fairchild, Jones and Condit redux in high-dynamic-range and color, *IS&T/SID 17th Color Imaging Conference*, Albuquerque, 8-14 (2009).

R.L. Heckaman and M.D. Fairchild, G0 and the gamut of real objects, Proceedings of *AIC Color '09*, Sydney, (2009).

M.D. Fairchild, To see, to adapt, and to reproduce, in Raúl Gómez Valverde, *To Look and To Look*, Esete Punto S.L., Santander, Spain, 58-71 (2009).

M.D. Fairchild, Twenty-five years of research at the Munsell Color Science Laboratory, ISCC Annual Meeting - MCSL 25th Anniversary Symposium, Rochester, (2009).

M. Sakurai, T. Nakatsue, Y. Shimpuku, R.L. Heckaman and M.D. Fairchild, Evaluation of gamut expansion algorithms for wide gamut display, SID International Symposium, San Antonio, 1006-1009 (2009).

T.J. Hattenberger, M.D. Fairchild, G.M. Johnson, and C. Salvaggio, A psychophysical investigation of global illumination algorithms used in augmented reality, *ACM Transactions on Applied Perception* **6**, 2:1-2:22 (2009).

N. Benjamin, M.D. Fairchild and J. Caviedes, review of color and contrast processing requirements in consumer video, *4th International Workshop on Video Processing and Quality Metrics (VPQM)*, Scottsdale, F1b-1(2009).

M. Sakurai, R.L. Heckaman, S. E. Casella, M.D. Fairchild, T. Nakatsue, and Y. Shimpuku, Effects of display properties on perceived color-gamut volume and preference, *Journal of the Society of Information Display* **16**, 1203-1211 (2008).

S.E. Casella, R.L. Heckaman, M.D. Fairchild, and M. Sakurai, Mapping standard image content to wide-gamut displays, *IS&T/SID 16th Color Imaging Conference*, Portland, 106-111 (2008).

R.L. Heckaman and M.D. Fairchild, Brighter, more colorful colors and darker, deeper colors based on a theme of brilliance, *IS&T/SID 16th Color Imaging Conference*, Portland, 112-116 (2008).

M.R. Rosen, C. Liu, M. Updegraff, M.D. Fairchild, J. Laird and I. Henderickx, Impact of chromatic surround on display perception, *IS&T/SID 16th Color Imaging Conference*, Portland, 147-151 (2008).

A. Sarkar, M.D. Fairchild, and J. Caviedes, A comparative study of color and contrast enhancement for still images and consumer video applications, *IS&T/SID 16th Color Imaging Conference*, Portland, 170-175 (2008).

I. Katayama and M.D. Fairchild, Classification of observers based on the evaluation tendency of perceived whiteness: Comparison of the experiment results in U.S. and those in Japan, 39th Annual Meeting of the Color Science Association of Japan,Fukuoka, Journal of the
Color Science Association of Japan, Vol.32 Supplement, 66-67(2008).

M.D. Fairchild, High, wide, & deep: Displayed image color appearance and perception, SID International Symposium, Los Angeles, 780-782 (2008).

M. Sakurai, R.L. Heckaman, S.E. Casella, M.D. Fairchild, T. Nakatsue, and Y. Shimpuku, Effect of color-gamut volume in display on image preference, SID International Symposium, Los Angeles, 795-798 (2008).

A. Sarkar, M.D. Fairchild, and C. Salvaggio, Integrated daylight harvesting and occupancy detection using digital imaging, SPIE/*IS&T Electronic Imaging*, San Jose, SPIE Vol. **6816**, 68160F (2008).

H. Zhang, H. Peng, M.D. Fairchild, and E.D. Montag, Hyperspectral image visualization based on a human visual model, SPIE/*IS&T Electronic Imaging*, San Jose, SPIE Vol. **6806**, 68060N (2008).

M.D. Fairchild, Beyond the locus of spectrally pure colors, SPIE/*IS&T Electronic Imaging*, San Jose, Proc. SPIE Vol. **6807**, 680702 (2008).

M.D. Fairchild, D.R. Wyble, and G.M. Johnson, Matching image color from different cameras, SPIE/ *IS&T Electronic Imaging*, San Jose, Proc. SPIE Vol. **6808**, 68080E (2008).

M. Sakurai , R.L. Heckaman, M.D. Fairchild, T. Nakatsue, and Y. Shimpuku, Relationship between color appearance and color gamut of the display, *ITE/SID 14th International Display Workshops*, Sapporo, Vol. 3, 2305-2308 (2007).

M.D. Fairchild, The HDR photographic survey, *IS&T/SID 15th Color Imaging Conference*, Albuquerque, 233-238 (2007).

M.D. Fairchild and D.R Wyble, Mean observer metamerism and the selection of display primaries, *IS&T/SID 15th Color Imaging Conference*, Albuquerque, 151-156 (2007).

C. Liu and M.D. Fairchild, Re-measuring and modeling perceived image contrast under different levels of surround illumination, *IS&T/SID 15th Color Imaging Conference*, Albuquerque, 66-70 (2007).

J. Kuang, R.L. Heckaman and M.D. Fairchild, Evaluation of HDR tone mapping algorithms using a high-dynamic-range display to emulate real scenes, *IS&T/SID 15th Color Imaging Conference*, Albuquerque, 299-303 (2007).

J. Kuang and M.D. Fairchild, iCAM06, HDR, and image appearance, *IS&T/SID 15th Color Imaging Conference*, Albuquerque, 249-254 (2007).

R.L. Heckaman, M. Sakurai, M.D. Fairchild, T. Nakatsue, and Y. Shimpuku, The effect of display gamut volume on image preference, *IS&T/SID 15th Color Imaging Conference*, Albuquerque, 201-206 (2007).

M.D. Fairchild, The HDR photographic survey, *IEEE Signal Processing Society Western New York Image Processing Workshop Proceedings*, Rochester,39-42 (2007).

J. Kuang, G.M. Johnson, and M.D.Fairchild, iCAM06: A refined image appearance model for HDR image rendering, *Journal of Visual Communication and Image Representation* **18**, 406-414 (2007).

R.L. Heckaman and M.D. Fairchild, Beyond the locus of pure spectral colors and the promise of high-dynamic-range display technology, *Information Display* **23**:7, 22-27 (2007).

M.D. Fairchild and G.M. Johnson, Measurement and modeling of adaptation to noise in images, *Journal of the Society of Information Display* **15**, 639-647 (2007).

M.D. Fairchild, Ed., Color, *World Book Encyclopedia*, (2007).

J.Kuang, H. Yamaguchi, C. Liu, G.M. Johnson, and M.D. Fairchild, Evaluating HDR rendering algorithms, *ACM Transactions on Applied Perception* **4**, Article 9 (2007).

G.M. Johnson and M.D. Fairchild, Image Appearance Modeling, Ch. 12 in *Colorimetry: Understanding the CIE System*, Wiley, Chichester (2007).

M.D. Fairchild, Spectral adaptation, *Color Research and Application* **32**, 100-112 (2007).

M.D. Fairchild, A color scientist looks at video, *3rd International Workshop on Video Processing and Quality Metrics (VPQM)*, Scottsdale, Invited Paper 1 (2007).

R.L. Heckaman and M.D. Fairchild, Effect of DLP projector white channel on perceptual gamut, *Journal of the Society of Information Display* **14**, 755-761 (2006).

M.D. Fairchild, Color appearance in image displays, *ISCC/CIE Expert Symposium - 75 Years of the CIE Standard Colorimetric Observer*, *CIE Pub. x-303:2006,* Ottawa, 91-95 (2006).

M.D. Fairchild, Spectral adaptation: A reason to use the wavenumber scale, *IS&T/SID 14th Color Imaging Conference*, Scottsdale, 314-319 (2006).

C. Liu and M.D. Fairchild, The surround color and color matching functions, *IS&T/SID 14th Color Imaging Conference*, Scottsdale, 203-208 (2006).

J. Kuang, G.M. Johnson, and M.D. Fairchild, iCAM for high-dynamic-range image rendering, *ACM Proceedings of the 3rd Symposium on Applied Perception in Graphics and Visualization*,Boston, **153**, 151 (2006).

R.L. Heckaman and M.D. Fairchild, Expanding display color gamut beyond the spectrum locus, *Color Research and Application* **31**, 475-482 (2006).

J. Kuang, C. Liu, G.M. Johnson, and M.D. Fairchild, Evaluation of HDR image rendering algorithms using real-world scenes, *International Congress of Imaging Science '06*, Rochester, 265-268 (2006).

C. Liu, J. Kuang, G.M. Johnson, and M.D. Fairchild, Lightness perception on noisy backgrounds considering background frequency and stimulus size, *International Congress of Imaging Science '06*, Rochester, 464-467 (2006).

E.D. Montag and M.D. Fairchild, Fundamentals of human vision and vision modeling, Ch. 2 in *Digital Video Image Quality and Perceptual Coding*, CRC Press,Boca Raton, 45-86 (2006).

M.D. Fairchild and R.L. Heckaman, Using HDR display technology and color appearance modeling to create display color gamuts that exceed the spectrum locus, *ISCC Special Topics Conference on Precision and Accuracy in the Determination of Color in Images*, Scottsdale (2005).

M.D. Fairchild and G.M. Johnson, On the salience of novel stimuli: Adaptation and image noise, *IS&T/SID 13th Color Imaging Conference*, Scottsdale, 333-338 (2005).

R.L. Heckaman, M.D. Fairchild and D.R. Wyble, The effect of DLP projector white channel on perceptual gamut, *IS&T/SID 13th Color Imaging Conference*, Scottsdale,205-210 (2005).

J. Kuang, G.M. Johnson and M.D. Fairchild, Image preference scaling for HDR rendering, *IS&T/SID 13th Color Imaging Conference*, Scottsdale, 8-13 (2005).

C. Liu, G.M.Johnson, G. Braun and M.D. Fairchild, Perception and modeling of halftone image quality using a high-resolution LCD, *IS&T/SID 13th Color Imaging Conference*, Scottsdale, 165-170 (2005).

T.J. Hattenberger, G.M. Johnson, and M.D.Fairchild, Evaluation of algorithms for augmented reality using psychophysics and iCAM, *ACM Proceedings of the 2nd Symposium on Applied Perception in Graphics and Visualization*,Spain, **95**, 174 (2005).

E.L. Landa and M.D. Fairchild, Charting color from the eye of the beholder, *American Scientist* **93**, 436-443 (2005).

R.L. Heckaman and M.D. Fairchild, Talking About Color ... Brilliance, *Color Research and Application* **30**, 250-251 (2005).

S. Fernandez, M.D. Fairchild and K. Braun, Analysis of observer and cultural variability while generating preferred color reproductions of pictorial images, *Journal of Imaging Science & Technology* **49**, 96-104 (2005).

G.M. Johnson and M.D. Fairchild, The effect of opponent noise on image quality, SPIE/*IS&T Electronic Imaging Conference*, San Jose, SPIE Vol. 5668, 82-89 (2005).

X. Jiang and M.D. Fairchild, Illuminant estimation for multi-channel images, SPIE/*IS&T Electronic Imaging Conference*, San Jose, **5667**,118-127 (2005).

J.M. Sanchez and M.D. Fairchild, The perceptual amplification of color for a common computer monitor: Helmholtz-Kohlrausch at work on the desktop computer, *Color Research and Application*, in press (2005).

H. Yamaguchi and M.D. Fairchild, A study of simultaneous lightness perception for stimuli with multiple illumination levels, *IS&T/SID 12th Color Imaging Conference*, Scottsdale, 22-28 (2004).

T. Hasegawa and M.D. Fairchild, Estimation of object reflectance spectra from digital camera images, *IS&T/SID 12th Color Imaging Conference*, Scottsdale, 111-116 (2004).

R. Patil, M.D. Fairchild and G.M. Johnson, 3D simulation of prints for improved soft proofing, *IS&T/SID 12th Color Imaging Conference*, Scottsdale, 193-199 (2004).

M.D. Fairchild and G.M. Johnson, METACOW: A public-domain, high-resolution, fully-digital, noise-free, metameric, extended-dynamic-range, spectral test target for imaging system analysis and simulation, *IS&T/SID 12th Color Imaging Conference*, Scottsdale, 239-245 (2004).

C. Liu and M.D. Fairchild, Measuring the relationship between perceived image contrast and surround illumination, *IS&T/SID 12th Color Imaging Conference*, Scottsdale, 282-288 (2004).

J. Kuang, H. Yamaguchi, G.M. Johnson and M.D. Fairchild, Testing HDR image rendering Algorithms, *IS&T/SID 12th Color Imaging Conference*, Scottsdale, 315-320 (2004).

X. Song, G.M. Johnson and M.D. Fairchild, Minimizing the perception of chromatic noise in digital images, *IS&T/SID 12th Color Imaging Conference*, Scottsdale, 340-346 (2004).

M.D. Fairchild, Color appearance modeling: Splicing color science and practical applications, *OSA Fall Vision Meeting*, Rochester, *Journal of Vision* **4:**11, 26 (2004).

M.D. Fairchild, G.M. Johnson, J. Kuang, and H. Yamaguchi, Image Appearance Modeling and High-Dynamic-Range Image Rendering, *SIGGRAPH 1st Symposium on Applied Perception in Graphics and Visualization*, Los Angeles, 171 (2004).

Q. Sun and M.D. Fairchild, Image quality analysis for visible spectral imaging systems, *Journal of Imaging Science and Technology* **48**, 211-221 (2004).

G.M. Johnson, R.A. Patil, E.D. Montag and M.D. Fairchild, Image quality scaling for electrophotographic prints, SPIE/*IS&T Electronic Imaging Conference*, San Jose, **5294**, 165-175 (2004).

M.D. Fairchild and G.M. Johnson, The iCAM framework for image appearance, differences, and quality, *Journal of Electronic Imaging* **13**, 126-138 (2004).

A.J. Calabria and M.D. Fairchild, Perceived image contrast and observer preference I: The effects of lightness, chroma, and sharpness manipulations on contrast perception, *Journal of Imaging Science & Technology* **47**, 479-493 (2003).

A.J. Calabria and M.D. Fairchild, Perceived image contrast and observer preference II: Empirical modeling of perceived image contrast and observer preference data, *Journal of Imaging Science & Technology* **47**, 494-508 (2003).

G.M. Johnson and M.D. Fairchild, Rendering HDR images, *IS&T/SID 11th Color Imaging Conference*, Scottsdale, 36-41 (2003).

Q. Sun and M.D. Fairchild, Application of PQS for image quality analysis in visible spectral imaging, *IS&T/SID 11th Color Imaging Conference*, Scottsdale, 132-136 (2003).

G.M. Johnson and M.D. Fairchild, A top down description of S-CIELAB and CIEDE2000, *Color Research and Application*, **28** 425-435 (2003).

M.D. Fairchild, iCAM: An image color appearance model, *25th Session of the CIE*, San Diego, D1-34 - D1-37 (2003).

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Community Activities:

George Eastman House International Museum of Photography and Film, Gallery Docent, 1991-1994

Member: The Nature Conservancy, Adirondack Mountain Club, Sierra Club, Mendon Foundation, United States Golf Association, Shivas Irons Society, George Eastman House, Rochester Museum & Science Center, BMWCCA.