

CURRICULUM VITAE

NAME: MIGUEL PATRICIO ECKSTEIN

OFFICE: Vision & Image Understanding Laboratory
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EDUCATION:

1987-1990 UNIVERSITY OF CALIFORNIA, BERKELEY
Berkeley, California
MAJORS: Physics & Psychology
DEGREE: B.S.

1990-1991 UNIVERSITY OF CALIFORNIA, LOS ANGELES
Los Angeles, California
MAJOR: Cognitive Psychology
DEGREE: M.A.

1991-1994 UNIVERSITY OF CALIFORNIA, LOS ANGELES
Los Angeles, California
MAJOR: Cognitive Psychology
MINOR: Measurement & Psychometrics
DEGREE: Ph.D.

POSITIONS (post PhD):

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| 5 / 94 – 7/00 | Research Scientist Department of Medical Physics & Imaging Cedars-Sinai Medical Center UCLA School of Medicine |
| 1/ 96 – 1/97 | Visiting Scientist Human Information Processing Branch NASA Ames Research Center |
| 7/00-7/03 | Assistant Professor Department of Psychology University of California, Santa Barbara |
| 7/03-7/07 | Associate Professor Department of Psychology University of California, Santa Barbara |
| 7/05-7/06 | Vice Chair Department of Psychology |

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| | University of California, Santa Barbara |
| 7/07-present | Professor Department of Psychology University of California, Santa Barbara |
| 7/09-present | Vice-Director Sage Center for the Study of the Mind University of California, Santa Barbara |

TEACHING:

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| Post- Ph.D. UCLA/Cedars Sinai | 1995-1999 | Radiological Sciences 210: Principles of Medical Imaging Statistical Methods Department of Radiological Sciences UCLA Cedars-Sinai Research Institute Minority Student Internship Program NIH Funded |
| UC Santa Barbara | 2000-2010 | Psych 5: Undergraduate Statistical Methods Psych 110A: Perception Psych 110L: Cognition & Perception Laboratory Psych 228: Graduate Perception Course Special Seminar on Visual Attention Bayesian models of Cognition & Perception Special Seminar on Medical Decision Making Special Seminar on Computational Modeling in Cognitive Science Undergraduate Honors Seminar Series |

FELLOWSHIPS & AWARDS:

International, National, State, Society Awards & Honors:

1998 Optical Society of America Young Investigator Award

2002 National Science Foundation CAREER Award (399,000 \$)

2008 National Academy of Sciences, Troland Research Award (50,000 \$)

2008 California State Senate Resolution (No. 475) relative to commending MP Eckstein.

2008 Republic of Argentina National Senate Resolution (No. 1192/08) relative to commending MP Eckstein

National Agency Travel Awards & Conference prizes:

1996 Center for Visual Sciences (Univ. of Rochester) Scholar Award to attend CVS Symposium: “Neural basis of spatial behavior”

1997 National Eye Institute Fellowship Award to present the abstract entitled “The visual efficiency of eye movements during search” at the 1997 ARVO annual meeting.

1998 Cum Laude Award for best poster at the SPIE, Medical Imaging Annual Meeting Image Perception & Observer Performance Conference.

Internal Institution Fellowships & Awards:

1991- 1994. Four year recipient UCLA Non-Resident Tuition Fellowship For Academic Achievement (total of 40,000 \$ towards university tuition)

1994 Recipient of the Cedars-Sinai Research Institute Fellowship (\$19,000)

2000 Cedars Sinai Research Institute Young Investigator Award (award of 10,000 \$)

National Agency Travel Awards & Conference prizes (As advisor):

1999 National Eye Institute Fellowship Award for abstract: “A closer look at the visual filter mediating letter identification” at the 1999 ARVO annual meeting (co-author with winner Craig Abbey)

2004 Cum Laude Award for best poster at the SPIE, Medical Imaging Annual Meeting Image Perception & Observer Performance Conference, Metrics of medical image quality: task-based model observers vs. image discrimination/perceptual difference models (Co-author with Yani Zhang)

2005 Vision Sciences Society Travel Award for abstract: Optimal and suboptimal models of oddity search (co-author with winner: Wade Schoonveld)

2008 Cum Laude Award for best poster at SPIE, Medical Imaging Annual Meeting Image Perception & Observer Performance Conference, Perceptual assessment of stenosis deployment (co-author with Craig Abbey, Sheng Zhang, Wade Schoonveld)

PROFESSIONAL ACTIVITIES:

Conference/Society chair and conference program committees

1999-2001 Vice-Chair (elect), Optical Society of America Annual Meeting, Vision Technical Group

2001-2003 Chair (elect), Optical Society of America Annual Meeting, Vision Technical Group

2000-2006 Program Committee for the Society for Optical Engineering, Human Vision and Electronic Imaging, (San Jose, CA)

2000-2004 Program Committee for the Society for Optical Engineering, Medical Imaging Meeting, Image Perception & Performance (San Diego, CA)

2001 Program Committee for Medical Image Perception Conference, Virginia

2003 Program Committee 1st International Workshop on Visual Attention, San Miniato, Italy

2004-2006 Conference Chair, Society for Optical Engineering Medical Imaging: Image Perception, Performance and Technology Assessment (San Diego, CA)

2007 Fellowships Committee European Conference on Visual Perception

2007 Chair, 2nd International Workshop on Visual Attention, Buenos Aires (special issue published in Vision Research)

2009 Co-Chair, Medical Image Perception Society Conference

Conference Session Chair and Symposium organization:

1997 Chairman for the conference session, “Modeling Visual Signal Detection I” at the vision section of the SPIE meeting (Feb. 1997 SPIE, Medical Imaging Conference).

1997 Organizer and Chairman for a Special Symposium: “Noise vs. Pattern Masking” at the Vision section of the 1997 Optical Society of America Annual Meeting in Long Beach, CA (Oct. 1997)

1997 Chairman for the conference session “Models for visual Signal Detection” at the Far West Image Perception Conference (Arizona, Oct. 1997)

1998 Chairman for session “Visual search and memory” at the Association for Research in Visual Ophthalmology (ARVO) Annual Meeting

1999 Chair for SPIE Image Perception conference session: Display Parameters and Performance I (Feb. 1999, San Diego)

2000 Chairman for session “Visual search” at the Association for Research in Visual Ophthalmology (ARVO) Annual Meeting

2000 Chairman for Special symposium, “Letter identification” at the annual meeting of the Optical Society of America

2001 Chairman for session ROC and other performance assessment tools II, SPIE Medical Imaging

2001 Organizer of Optical Society of America Meeting Workshop on Visual Attention. Participants: Harold Pashler, George Sperling, Barbara Doshier, John Palmer, Marisa Carrasco

2002 Symposium Organizer for Fall Vision Meeting: Effects of Spatial Context

2003 Chairman for session “Observer models I: Clinical Applications”, SPIE Medical Imaging

2004 Chairman for session “Model observers”, SPIE Medical Imaging.

2004 Chairman for session: “Visual Search”, European Conference on Visual Perception, Budapest.

2007 Chairman for Session: “Visual Search”, European Conference on Visual Perception, Arezzo

2007 Chairman for Session: “Model Observers”, Medical Image Perception Society Conference, Iowa

Grant Review/Study Sections:

1998 National Institute of Health, Diagnostic Imaging Study Section (ad hoc)

2000 NASA, Human Factors Study Section (ad hoc)

2002 National Institute of Health, Diagnostic Imaging Study Section (ad hoc)

2003 National Science Foundation, Cognition and Perception (ad hoc)

2004 National Institute of Health, Central Visual Processes (ad hoc)

2004 Air Force (ad hoc)

2006-2007 National Science Foundation, Cognition and Perception (ad hoc)

2002-2007 NIH, Biomedical Imaging Technology, Study Section (Panel Member)

2007 NIH Conflict Study Section (Biomedical Imaging Technology)

2008 NSF Cognition & Perception (ad hoc)

2009 NIH Conflict Study Section (Biomedical Imaging Technology)

2009 NSF Cognition, Perception and Action (ad hoc)

2010 NIH Conflict Study Section (Biomedical Imaging Technology)

Editorial duties for journals:

2002 Guest Editor, Special Issue Journal of Vision Special Issue: “Classification Images: A tool to analyze visual strategies.” <http://journalofvision.org/2/1/3>

2003-2006, Consulting Editor, Perception & Psychophysics

2004-2006, Editor, SPIE Proceedings on Medical Imaging, Image Perception, Observer Performance and Technology Assessment

2005- present, Vision Topic Editor, Journal of the Optical Society of America A

2006-present, Board of Editors, Journal of Vision

2007 Guest Editor Special Issue: Medical Image Quality, Journal of the Optical Society of America A

JOURNAL REVIEW:

General science journals

Nature
Proceedings of the National Academy of Sciences

Psychology, perception, biology and neuroscience journals

Psychological Review
Psychological Bulletin & Review
Psychological Science
Journal of Experimental Psychology Human Performance & Perception
Journal of Experimental Psychology, General
British Journal of Psychology
Vision Research
Perception & Psychophysics
Journal of Neuroscience
Frontiers in Neuroscience
Nature Neuroscience
Journal of Vision
Journal of Neurophysiology
Current Biology
Neuropsychologia

Engineering/Physics/Medicine journals

Journal of the Optical Society of America A
IEEE Transactions on Medical Imaging
Medical Physics
Journal of Electronic Imaging
Physics & Biology in Medicine
Academic Radiology
Investigative Radiology

ACTIVE RESEARCH GRANTS:

2008-2011 The effect of cues on multiple fixation visual search, National Science Foundation, PI: M.P. Eckstein

2009-2011, Department of Defense, “Predicting perceptual decisions and learning from human brain activity using machine learning algorithms from neural activity”, PI: M.P. Eckstein

2004-2010 National Institute of Health, National Eye Institute, RO1: “Perceptual learning: human vs. optimal Bayesian”
PI: M.P. Eckstein (no cost extension)

2005-2010 National Institute of Health, RO1: Model observer optimization of coronary angiograms, PI: M.P. Eckstein (no cost extension)

PAST RESEARCH GRANTS:

2006-2008 Geospatial Agency: Context effects on change detection
PI: M.P. Eckstein

2002-2008, National Science Foundation CAREER Grant: Quantitative testing of models of visual attention during search
PI: M.P. Eckstein

NIH-RO1 Model observer optimization of coronary angiograms
(1996-2004) PI M.P. Eckstein

NASA/ARC/AFH, Quantitative modeling for saccadic targeting during search
(1999-2003) PI: M.P. Eckstein.

NASA/ARC/AFH, Measuring the relationship between perceived location and saccadic targeting for 3 years (1998-2000) PI: MP Eckstein

UCSB Research across disciplines: Digital Science, Art, and Culture, Co-I: M.P. Eckstein

PUBLICATIONS:

Currently in press:

Das, K., Giesbrecht, B., Eckstein, MP, Predicting variations of perceptual performance across individuals from neural activity using pattern classifiers, *Neuroimage* (2010).

Kasper R., Das, K., Eckstein, M.P., Giesbrecht, B., Decoding Information Processing When Attention Fails: An Electrophysiological Approach, *Proceedings to the International Conference on Neuroergonomics*, (2010)

Trenti EJ, Barraza JF, Eckstein MP. Learning motion: Human vs. optimal Bayesian learner, *Vision Research* (2010)

Abbey, C.K., Eckstein, M.P., Observer Models as a Surrogate to Perception Experiments, *Handbook of Medical Image Perception*, Editors, Elizabeth Krupinski, Ehsan Samei, (2010)

Abbey CK, Eckstein MP, Boone JM., An Equivalent Relative Utility Metric for Evaluating Screening Mammography, *Medical Decision Making*, (2010)

Published

K.Das, S. Zhang, B. Giesbrecht, M. P. Eckstein, Using Rapid Visually Evoked EEG Activity for Person Identification, in Proc. of the 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society, (2009)

Eckstein MP, Peterson MF, Pham BT, Droll JA., Statistical decision theory to relate neurons to behavior in the study of covert visual attention, *Vision Research*, 49, 1097-128, (2009)

Droll J.A., Eckstein, M.P., Gaze control and memory for objects while walking in a real world environment, *Visual Cognition*, Special Issue on Eye Guidance in Natural Scenes (2009)

Zhang S., Abbey C.K., Eckstein M.P., Virtual evolution for visual search in natural images results in behavioral receptive fields with inhibitory surrounds, *Visual Neuroscience*, 26, 93-108, (2009)

Droll J.A., Abbey C.K., Eckstein M.P., Learning cue validity through performance feedback. *Journal of Vision*, 9(2):18.1-23, (2009)

Abbey C.K., Eckstein M.P., Frequency tuning of perceptual templates changes with noise magnitude., *J Optical Society of America A*, 26, B72-83, (2009)

Castella C., Eckstein M.P., Abbey C.K., Kinkel K., Verdun F.R., Saunders R.S., Samei E., Bochud F.O., Mass detection on mammograms: influence of signal shape uncertainty on human and model observers, *Journal of the Optical Society of America A*, 26, 425-36, (2009)

Peterson M.F., Abbey C.K., Eckstein M.P., The surprisingly high human efficiency at learning to recognize faces, *Vision Research*, 49, 301-14 (2009).

Sheng Zhang, Craig K. Abbey, Arian Teymoorian, Xiaolin Da, James S. Whiting, and Miguel P. Eckstein, Motion and display effects on perception of multiple coronary stents, *Proc. SPIE Medical Imaging, Imaging*, Vol. 7263, 726306, (2009)

Abbey C.K., Sohl-Dickstein J.N., Olshausen B.A., Eckstein M.P., and Boone J.M., Higher-order scene statistics of breast images, *Proc. SPIE Medical Imaging*, Vol. 7263, (2009)

Castella C., Ruschin M., Eckstein M.P., Abbey C.K., Kinkel K., Verdun, F.R., Tingberg A., Bochud F.O., Mass detection in breast tomosynthesis and digital mammography: a model observer study, *Proc. SPIE Medical Imaging*, Vol. 7263, (2009)

Stone L.S., Liston D., Beutter B.R., Eckstein M.P., Oculomotor Control: Perception and eye movements, *New Encyclopedia of Neuroscience*, edited by Larry Squire et al, Elsevier, (2008)

Abbey C.K., Pham B.T., Shimozaki S.S., Eckstein M.P., Contrast and stimulus effects in rapid learning of a visual task, *Journal of Vision*, (2008)

Abbey, C.K., Teymoorian, A., Schoonveld W., Da. X., Sheng, Z., Whiting J.S., Eckstein M.P., Perceptual assessment of multiple stent deployment, *Proc. SPIE Medical Imaging*, 6917, 17, (2008)

Castella C., Kinkel, K., Eckstein, M.P., Abbey, C.K., Verdun, F.R., Saunders, R.S., Samei, E. and Bochud, F., O.Mass detection on mammograms: signal variations and performance changes for human and model observers, *SPIE Proc. Vol., 6917: Medical Imaging*, (2008)

Castella, C., Kinkel, K., Descombes, F., Eckstein, M.P., Sottas, P., Verdun, F.R. and Bochud, F.O., Mammographic texture synthesis: second-generation clustered lumpy backgrounds using a genetic algorithm, *Optics Express*, 16, 7595-7607, (2008)

Shimozaki, S.S., Chen, K., Eckstein, M.P., Probing the temporal dynamics of attention to the periphery with classification movies, *Journal of Vision*, 7,1-20 (2007)

Abbey, C.K., Eckstein M.P., Classification images for simple detection and discrimination tasks in correlated noise, *Journal of the Optical Society of America A*, 24, 110-124 (2007)

Castella, C., Abbey, C.K., Eckstein, M.P., Verdun, F.R., Kinkel, K., Bochud, F.O., Human linear template with mammographic backgrounds estimated with genetic algorithm, *Journal of the Optical Society of America A*, 24, 1-12 (2007)

Eckstein, M.P., Beutter, B.R., Pham, B.T., Shimozaki, S.S., Stone, L.S., Similar neural representations of the target for saccades and perception during search, *Journal of Neuroscience*, 27, 1266-1270 (2007)

Castella C, Kinkel K, Eckstein MP, Sottas PE, Verdun FR, Bochud FO., Semiautomatic mammographic parenchymal patterns classification using multiple statistical features. *Acad Radiol.* 2014, 1486-1499, (2007)

Schoonveld, W., Shimozaki, S.S., & Eckstein, M.P., Optimal observer model of single-fixation oddity search predicts a shallow set-size function. *Journal of Vision*, 7(10):1, 1-16, (2007)

Ludwig, C.J., Eckstein, M.P., Beutter, B.R., Limited flexibility in the filter underlying saccadic targeting, *Vision Research*, 47, 280-288, (2007)

Zhang, Y., Pham, B.T., Eckstein M.P., Evaluation of internal noise methods for Hotelling observer models, *Medical Physics*, 34, 3312-3322 (2007)

Castella C., Kinkel K., Verdun FR, Eckstein MP, Abbey CK, and Bochud, Mass detection on real and synthetic mammograms: human observer templates and local statistics, *Proc. SPIE Medical Imaging, Observers Performance and Technology Assessment* ,Vol. 6515, (2007)

Abbey, C.K., Insana, M.F., Eckstein, M.P. and Boone, J.M., A bivariate binormal ROC methodology for comparing new methods to an existing standard for screening applications, Proc. SPIE Medical Imaging, Image Perception, Observers Performance and Technology Assessment, Vol. 6515, (2007)

Eckstein, M.P., Drescher, B.A., Shimozaki, S.S., Attentional cues in real scenes, saccadic targeting and Bayesian priors, Psychological Science, 17, 973-980 (2006)

Shimozaki, S, Kingstone, A, Olk, B, Stowe, R, Eckstein, M.P., Classification images of two right hemisphere patients: A window into the attentional mechanisms of spatial neglect, Brain Research, 29, 1080, 26-52. (2006)

Zhang, Y., Pham, B.T., Eckstein, M.P., The effect of non-linear human visual system components on channelized Hotelling model observer performance, IEEE Transactions on Medical Imaging, 25, 1348-1362, (2006)

Zhang, Y., Abbey, C.K., Eckstein M.P., Adaptive mechanisms for visual detection in statistically non-stationary oriented noise, Journal of the Optical Society of America A., 23, 1549-1558, (2006)

Abbey, C.K., Eckstein, M.P., Classification images for detection, contrast discrimination, and identification tasks with a common ideal observer. Journal of Vision, 6, 335-355, (2006)

Castella, C, Kinkel, K, Dsecombes F, Eckstein, M.P., Sottas, P.E., Verdun, F.R., Bochud, F.O., Mammographic texture synthesis using genetic programming and clustered lumpy background, Proc. SPIE, Medical Imaging, Image Perception, Observer Performance, and Technology Assessment, 6146, (2006)

Zhang, Y., Abbey, C.K., Eckstein, M.P., Observer performance detecting signals in globally non-stationary oriented noise, Proc. SPIE, Medical Imaging, Image Perception, Observer Performance, and Technology Assessment, 6146, (2006)

Eckstein, M.P., Pham, B.T., Abbey, C.K., Zhang Y, The efficiency of reading around learned backgrounds, Proc. SPIE, Medical Imaging, Image Perception, Observer Performance, and Technology Assessment, 6146, (2006)

Shimozaki, S.S., Eckstein, M.P., Abbey, C.K. Spatial profiles of local and nonlocal effects upon contrast detection/discrimination from classification images, Journal of Vision 28, 45-57 (2005)

Zhang, Y., Pham BT, Eckstein MP, Evaluation of internal noise methods for Hotelling observers, Proc. SPIE, Medical Imaging, Image Perception, Observer Performance, and Technology Assessment, 5749, 162 (2005)

Zhang, Y., Pham, B.T., Eckstein, M.P., Task-based model/human observer evaluation of SPIHT wavelet compression with human visual system-based quantization. Academic Radiology, 12, 324-36 (2005)

Caspi, A., Beutter, B.R., Eckstein, M.P., The time course of visual information accrual guiding eye movement decisions, *Proceedings of the National Academy of Sciences*, 101: 13086-13090, (2004)

Zhang, Y., Pham, B.T., Eckstein, M.P., Evaluation of JPEG 2000 encoder options: human and model observer detection of variable signals in X-ray coronary angiograms. *IEEE Trans Med Imaging*.23: 613-32, (2004)

Bochud, F.O., Abbey, C.K., Eckstein, M.P., Search for lesions in mammograms: statistical characterization of observer responses, *Medical Physics*, 31, 24-36, (2004)

Zhang, Y., Pham, B.T., Eckstein, M.P., Automated optimization of JPEG 2000 Encoder Options Based on Model Observer Performance for detecting variable signals in X-ray coronary angiograms, *IEEE Transactions on Medical Imaging*, 23, 459-474, (2004)

Eckstein, M. P., Abbey, C. K., Pham, B. T., & Shimozaki, S. S. Perceptual learning through optimization of attentional weighting: Human versus optimal Bayesian learner. *Journal of Vision*, 4(12), 1006-1019, (2004)

Eckstein, M.P., Pham B.T., Shimozaki, S.S., The footprints of visual attention during search with 100% valid and 100% invalid cues, *Vision Research*, 40, 1193-207, (2004)

Eckstein, M.P., *Active Vision*, *Perception*, 33, (2004)

Baldassi, S, Burr D, Carrasco M, Eckstein M, Verghese P., *Visual Attention*, *Vision Research*, 44,1189-91, (2004)

Eckstein, M.P., Zhang, Y., Pham, B.T., Metrics of medical image quality: task-based model observers vs. image discrimination/perceptual difference models, *Proc SPIE Vol. 5272*, 42-52, *Medical Imaging: Image Perception, Observer Performance, and Technology Assessment*, (2004)

Zhang, Y., Eckstein M.P., Pham, B.T., The effect of non-linear human visual system components on linear model observers, *Proc SPIE Vol. 5272*, 31-41, *Medical Imaging: Image Perception, Observer Performance, and Technology Assessment*, (2004)

Cameron, EL, Tai JC, Eckstein MP, Carrasco M., Signal detection theory applied to three visual search tasks--identification, yes/no detection and localization. *Spat Vis.*, 17:295-325, (2004)

Eckstein, M.P., Bartroff J.L., Abbey, C.K., Whiting, J.S., Bochud, F.O., Automated computer evaluation and optimization of image compression of x-ray coronary angiograms for signal known exactly detection tasks, *Optics Express*, 11, 460-475, (2003)

Shimozaki, S. S., Eckstein, M. P., & Abbey, C. K., Comparison of two weighted integration models for the cueing task: linear and likelihood. *Journal of Vision*, 3(3), 209-229, <http://journalofvision.org/3/3/3/>, DOI 10.1167/3.3.3., (2003)

Beutter, B.R., Eckstein, M.P., Stone, L.S., Saccadic and perceptual performance in visual search tasks. I. Contrast detection and discrimination. *J Opt Soc Am A Opt Image Sci Vis*, 20, 1341-55, (2003)

Murray, R., Beutter, B.R., Eckstein, M.P., Stone, L.S., Saccadic and perceptual performance in visual search tasks. II. Letter discrimination, *J Opt Soc Am A Opt Image Sci Vis.*, 20, 1356-70, (2003)

Shimozaki, S.S., Eckstein, M.P., & Abbey, C.K., An ideal observer with channels vs. feature independent processing of spatial frequency and orientation in visual search performance. *J. Opt. Soc. Am. A Image Sci Vis.*, 20, 2197-2215, (2003)

Zhang, Y., Pham B., Eckstein, M.P., JPEG 2000 encoder options on model observer performance in signal known exactly but variable tasks (SKEV)", *Proc. SPIE Vol. 5034*, p. 371-382, *Medical Imaging: Image Perception, Observer Performance, and Technology Assessment*, (2003)

Eckstein, M.P., Zhang Y., Abbey C.K., Optimization of model observer performance for signal known exactly but variable tasks leads to optimized performance in signal known statistically tasks, *Proc. SPIE Vol. 5034*, p. 371-382, *Medical Imaging: Image Perception, Observer Performance, and Technology Assessment*, (2003)

Shimozaki, S.S., Eckstein M.P., Abbey, C.K., Stimulus information contaminates summation tests of independent neural representation of features, *Journal of Vision*, 2(5), <http://journalofvision.org/2/5/1/>, (2002)

Eckstein, M.P., Ahumada, Albert Jr. Classification images: A tool to analyze visual strategies. *Journal of Vision*, 2(1), <http://journalofvision.org/2/1/3> , (2002)

Eckstein, M.P., Shimozaki, S.S., Abbey, C.K., The footprints of visual attention in the Posner paradigm revealed by classification images. *Journal of Vision*, 2(1), 25-45, <http://journalofvision.org/2/1/3> (2002)

Abbey, C. K. & Eckstein, M. P. Classification image analysis: Estimation and statistical inference for two-alternative forced-choice experiments. *Journal of Vision*, 2(1), 66-78, <http://journalofvision.org/2/1/5> (2002)

Abbey, C.K., Eckstein, M.P., Optimal shifted estimates of human-observer templates in two-alternative forced choice experiments, *IEEE Transactions on Medical Imaging*, 21, 429-440, (2002)

Eckstein, M.P., Abbey, C.K., B. Pham, Effect of image compression for model and human observers in signal known statistically tasks, *Proc. SPIE, Image Perception*, 4686, 13-24, (2002)

Abbey, C.K., Eckstein, M.P., Shimozaki, S.S., Baydush, A.H., Catarious, C.E., Floyd, C.E., Human observer templates for detection of a simulated lesion in mammographic images, *Proc. SPIE, Image Perception*, 4686, 25-36, (2002)

Shimozaki, S.S. , Thomas J.P. , Eckstein, M.P., Adaptation and contrast effects on lightness judgments. *Perception and Psychophysics*, 63, 1048-1062 (2001)

Eckstein, M.P., Beutter, B.R., Stone, L.S., The information limits of saccadic targeting during visual search, *Perception*, 30, 1389-1401 (2001)

Eckstein, M.P., The perception of medical images: 1941-2001. *Optics and Photonics News*, 12, 34-40, (2001)

Abbey, C.K., Eckstein, M.P., Theory for estimating human-observer templates in two-alternative forced-choice experiment. *Proc. 17th Int. Conf. On Information Processing in Medical Imaging* (M.F. Insana and R. Leahy, Eds.), Springer-Verlag, Berlin, (2001).

Eckstein, M.P., Abbey, C.K., Model observers for signal-known-statistically tasks, *Proc. SPIE, Image Perception and Performance*, 4324, 91-103, (2001)

Abbey, C.K., Eckstein, M.P., Maximum likelihood and maximum a posteriori estimates of human observer templates, *Proc. SPIE, Image Perception and Performance*, 4324, 114-123, (2001)

Eckstein, M. P., Thomas, J.P, Palmer, J., Shimozaki, S.S., A signal detection model predicts effects of set size on visual search accuracy for feature, conjunction, triple conjunction and disjunction displays, *Perception & Psychophysics*, 62,425-451 (2000)

Eckstein, M.P., Bochud F.O., Abbey, C.A., Visual signal detection in structured backgrounds IV. Figures of merit for model observers in multiple alternative forced choice with response correlations, *Journal of the Optical Society of America A*, 17, 206-217, (2000)

Bochud, F.O., Abbey, C.A., Eckstein, M.P., Visual signal detection in structured backgrounds III. Calculation of figures of merit for model observers in statistically non-stationary backgrounds, *Journal of the Optical Society of America A*, 17, 193-216, (2000)

Abbey, C.K., Eckstein, M.P., Derivation of a detectability index for correlated responses in multiple-alternative forced-choice experiments. *J. Opt. Soc. Am. A*. 17(11):2101-4. (2000).

Morioka, C.A., Abbey, C.K., Eckstein, M.P., R. Close, J.S. Whiting, and M. LeFree, Simulating coronary arteries in x-ray angiograms, *Medical Physics*, 27(10):2438-2444, (2000)

Carrasco, M., Penpeci-Talgar, C., Eckstein, M.P., Spatial covert attention increases contrast sensitivity across the CSF: support for signal enhancement, *Vision Research*, 40, 1203-1215, (2000)

Eckstein, M.P., Abbey, C.K., Bochud, F.O., Practical guide to model observers in synthetic and real noisy backgrounds, in *Handbook of Image Perception, Physics and Psychophysics*, Editors, J. Beuttl, SPIE Press, (2000)

Eckstein, M.P., Abbey C.K., Bartroff, J.L., Model observer based optimization of JPEG image compression, *Proc. SPIE, Image Perception and Performance*, 3981, 106-115, (2000)

Abbey, C.K., Eckstein, M.P., Estimates of human-observer templates for a simple detection task in correlated noise, Proc. SPIE, Image Perception and Performance, 3981, 70-77, (2000)

Shimozaki, S.S., Eckstein, M.P., Thomas, J.P., The maintenance of lightness for an object, Journal of Experimental Psychology, 25, 1433-1453, (1999)

Eckstein, M.P., Bartroff, J.L., Morioka, C.A., Vodopich, D.J., Whiting, J.S, Feature stabilized digital x-ray coronary angiograms improve human visual detection in JPEG compressed images, Optics Express, 6, 193-199, (1999)

Bochud, F. O., Abbey, C.K., Eckstein, M.P., Statistical texture synthesis of mammographic images with clustered lumpy backgrounds, Optics Express, 4, 33-43, (1999)

Morioka, C.A., Eckstein, M.P., Bartroff, J.L., Hausleiter J., Whiting, J.S., Observer performance for JPEG vs. wavelet image compression of x-ray coronary angiograms, Optics Express, 5, 8-19, (1999)

Abbey, C.A., Eckstein, M.P., Bochud, F.O., Estimation of human templates for 2 alternative forced choice tasks, Proc. SPIE, Image Perception, 3363, 284-295, (1999)

Bochud F. O., Abbey C.K., Eckstein M.P., Further investigation of the effect of phase spectrum on visual detection in structured backgrounds, Proc. SPIE Image Perception, 3663, 273-283, (1999)

Eckstein M.P., Abbey C.K., Whiting, J.S., The effect of image compression in model and human observers, Proc. SPIE Image Perception, 3363, 242-252, (1999)

Bartroff, J., Morioka, C.A., Whiting, J.S., Eckstein, M.P., Image compression and feature stabilization of dynamically displayed coronary angiograms, Medical Imaging, Image Perception, Proc. SPIE Image Perception, 3363, 342-346, (1999)

Carney, T., Klein, S. A., Tyler, C. W., Silverstein, A. D., Beutter, B., Levi, D., Watson, A. B., Reeves, A. J., Norcia, A. M., Chen, C.-C., Makous, W., & Eckstein, M. P. The development of an image/threshold database for designing and testing human vision models. In B. Rogowitz & T. Pappas (Eds.), Proceedings of the SPIE (Vol. 3644, pp. 542-551). Bellingham, WA: SPIE. (1999)

Eckstein, M.P., The lower efficiency for conjunctions is due to noise and not serial attentional processing, Psychological Science, 9, 111-118, (1998)

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OTHER MANUSCRIPTS:

Quantitative metrics relating perceptual and oculomotor performance during search, M.P. Eckstein, B.R. Beutter, L.S. Stone, NASA Technical Memorandum, (1998)

Mathematical representation of Wolfe's Guided Search model for accuracy in localization tasks, M.P. Eckstein, B.R. Beutter, NASA Technical Memorandum, Technical Memorandum, (2000)

PUBLISHED ABSTRACTS AND PRESENTATIONS:

Over 150 published abstracts and conference presentations at the following meetings (detailed list available on request):

Vision Science Society
Optical Society of America
European Conference on Visual Perception
Society for Neuroscience
Computational System Neuroscience
Medical Image Perception
Association for Research in Visual Ophthalmology
Society for Cognitive Neuroscience
International Workshop on Visual Attention

SELECTED INVITED TALKS:

Conference/Workshop/Symposia invited talks:

Vision Science Society Symposium, Attention and Reward (2010)
Summer Institute on Cognitive Neuroscience, (2009)
National Geospatial Agency Workshop on Visual Search, Virginia, (2009)
Workshop on Model observers for breast tomosynthesis and computed tomography, University of Chicago, (2009)
Workshop on eye movements and perception, Computational Systems Neuroscience Meeting, Utah (2009)
Workshop on Perceptual Learning, Beijing, China (2008)
Workshop on Natural Environments Tasks and Intelligence, UT Austin (2008)
Vision Science Society, Symposium on classification images, Florida (2007)
American Association of Physicists in Medicine, Annual Meeting (2005)
Joint Symposium on Neural Computation, UCLA (2005)
American Psychological Society, Annual Meeting, Visual attention Symposium (2005)
International workshop on Visual Attention, Italy (2003)
Munich Visual Search Symposium (2003)
Mathematical Psychology Annual Meeting: Multidimensional Signal Detection symposium (2002)
Optical Society of America Annual Meeting, Eye movements during search symposium, (1999)

Selected university invited talks:

Kavli Institute for Theoretical Physics, UC Santa Barbara (2010)
Institute for Applied Radiophysics, Lausanne Switzerland, (2009)
Ecole Polytechnique Fédérale de Lausanne Switzerland, (2009)
Vision Science Program, UC Berkeley (2008)
Electrical Engineering and Computer Science, UC Merced, (2008)
New York Vision Seminar Series (NYU, Columbia, Cornell Medical, SUNY, 2008)
Neurobiology Institute, Freie University, Germany (2007)
Dept. of Psychology, University of Birmingham, UK (2007)
Dept. of Psychology, University of Bristol, UK (2007)
Institute for Light and Vision, University of Tucuman, Argentina (2007)
Center for Visual Sciences, University of Rochester (2006)
Max Planck Institute, Tübingen, Germany (2005)
Department of Radiology, University of Chicago (2005)
Siemens Research Center, Princeton, New Jersey, (2004)
Department of Psychology, University of Pennsylvania (2004)
Department of Psychology, UCLA (2004)
Quantitative Methods in Social Sciences, UC Santa Barbara (2003)
Interactive Digital Multimedia Seminar Series, UC Santa Barbara (2003)
Department of Psychology, University of Texas, Austin (2002)
The Sloan-Swartz Center for Theoretical Neurobiology Lecture at the Salk Institute, San Diego (2002)
Smith Kettlewell Eye Research Institute (2002)
Department of Engineering, UC Santa Barbara (2002)
Dept. of Cognitive Science, University of California Irvine (2001)
NASA Ames Research Center (2001)
Dept. of Psychology, New York University (2000)
Dept. of Psychology, University of Illinois, Urbana (1999)
Dept. of Psychology, University of Toronto (1999)
Center for Visual Sciences, Univ. of Rochester (1999)
Dept. of Psychology, UC Santa Barbara, (1998)
Pavlov Institute of Physiology, Russian Academy of Sciences, (1997)
Swedish Center for Optical Research, Stockholm (1997)
NASA Ames Research Center (1996)
Dept. of Psychology, Harvard University (1995)
Optical Sciences Center, University of Arizona, (1995)