

## Micah Kimo Johnson

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| EDUCATION    | <b>Massachusetts Institute of Technology</b><br><i>Postdoctoral Fellow, Brain &amp; Cognitive Sciences</i><br>Postdoctoral advisor: Edward H. Adelson   | 2008–2010   |
|              | <b>Dartmouth College</b><br><i>Ph.D. Computer Science</i><br>Lighting and Optical Tools for Image Forensics, advisor: Hany Farid  | 2002–2007   |
|              | <b>Dartmouth College</b><br><i>A.M. Electro-Acoustic Music</i><br>The Spectral Modeling Toolbox, advisor: Larry Polansky  | 2000–2002   |
|              | <b>University of New Hampshire</b><br><i>B.S. Mathematics, University Honors, Summa Cum Laude</i>   | 1996–2000   |
|              | <b>University of New Hampshire</b><br><i>B.A. Music Theory, Summa Cum Laude</i>   | 1996–2000   |
| GRANTS       | National Science Foundation, co-sponsor Adobe Systems, postdoctoral grant (110K), 2008  |   |
| PUBLICATIONS | M. Tao, M.K. Johnson, and Sylvain Paris. Error-tolerant Image Compositing, to appear, <i>European Conference on Computer Vision</i> , 2010.   |   |
|              | M.K. Johnson, K. Dale, S. Avidan, H. Pfister, W.T. Freeman, and W. Matusik. CG2Real: Improving the Realism of Computer Generated Images using a Large Collection of Photographs, to appear, <i>IEEE Transactions on Visualization and Computer Graphics</i> , 2010. |   |
|              | K. Sunkavalli, M.K. Johnson, W. Matusik and H. Pfister. Multi-scale Image Harmonization, to appear, <i>SIGGRAPH</i> , 2010.   |   |
|              | R. Grosse, M.K. Johnson, E.H. Adelson and W.T. Freeman. Ground-truth dataset and baseline evaluations for intrinsic image algorithms, <i>International Conference on Computer Vision</i> , 2009.  |   |
|              | K. Dale, M.K. Johnson, K. Sunkavalli, W. Matusik and H. Pfister. Image Restoration using Online Photo Collections, <i>International Conference on Computer Vision</i> , 2009.   |   |
|              | M.K. Johnson and E.H. Adelson. Retrographic sensing for the measurement of surface texture and shape, <i>IEEE Conference on Computer Vision and Pattern Recognition</i> , 2009. Accepted for oral presentation (4.2% acceptance rate).                              |   |
|              | L. Polansky, D. Rockmore, M.K. Johnson, D. Repetto and W. Pan. A Mathematical Model for Optimal Tuning Systems, <i>Perspectives of New Music</i> , vol. 47, no. 1, p. 69–110, 2009.   |   |
|              | D. Stork and M.K. Johnson. Lighting analysis of diffusely illuminated tableaus in realist paintings. <i>SPIE Symposium on Electronic Imaging</i> , vol. 7254, San Jose, CA, 2009.   |   |
|              | W. Pan, M.K. Johnson, L. Polansky, D. Rockmore and D. Repetto. OWT: A Real-Time Optimal Tuning Application, <i>International Computer Music Conference</i> , Belfast, Northern Ireland, 2008.   |   |

M.K. Johnson, D. Stork, S. Biswas and Y. Furuichi. Inferring Illumination Direction Estimated from Disparate Sources in Paintings: An Investigation into Jan Vermeer's *Girl With a Pearl Earring*. *SPIE Symposium on Electronic Imaging*, vol. 6810, San Jose, CA, 2008.

M.K. Johnson and H. Farid. Detecting Photographic Composites of People. *6th International Workshop on Digital Watermarking*, Guangzhou, China, 2007.

M.K. Johnson and H. Farid. Exposing Digital Forgeries in Complex Lighting Environments. *IEEE Transactions on Information Forensics and Security*, 2007.

M.K. Johnson and H. Farid. Exposing Digital Forgeries Through Specular Highlights on the Eye. *9th International Workshop on Information Hiding*, Saint Malo, France, 2007.

M.K. Johnson and H. Farid. Exposing Digital Forgeries Through Chromatic Aberration. *ACM Multimedia and Security Workshop*, Geneva, Switzerland, 2006.

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

D. Stork and M.K. Johnson. Computer Vision, Image Analysis, and Master Art: Part 2. *IEEE Multimedia*, Oct. 2006.

D. Stork and M.K. Johnson. Estimating the Location of Illuminants in Realist Master Paintings. *Int. Conf. on Pattern Recognition*, Hong Kong, 2006.

A. Roginska, E. Childs and M.K. Johnson. Monitoring Real-Time Data Streams: A Sonification Approach. *Int. Conf. on Auditory Display*, Queen Mary, UK, 2006.

M.K. Johnson and H. Farid. Exposing Digital Forgeries by Detecting Inconsistencies in Lighting. *ACM Multimedia and Security Workshop*, New York, NY, 2005.

M.K. Johnson, S. Lyu and H. Farid. Steganalysis of Recorded Speech. *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2005.

#### DEMOS

M.K. Johnson and E.H. Adelson. An interactive "retrographic sensor" for touch, texture, and shape, at ICCV 2009. Demo video on YouTube, search for "Exploring GelSight."

A. Raj, M.K. Johnson, and E.H. Adelson. An interactive "retrographic sensor" for touch, texture, and shape, at SIGGRAPH Emerging Technologies 2009. Demo video on YouTube, search for "GelSight."

M.K. Johnson and E.H. Adelson. Retrographic sensing for the measurement of surface texture and shape, at CVPR 2009. Received *Best Demo* award.

#### PATENT

K. Short, D. Hussey, and K. Johnson. Method and Apparatus for Compressed Chaotic Music Synthesis, U.S. Patent 06137045.

#### TALKS

GelSight: a high-resolution sensor for touch, texture and shape, Brontes (3M), 3/2010

Retrographic Sensing for the Measurement of Surface Texture and Shape, CVPR, 6/2009

Improving Fake Images, Computer Science Colloquium, Dartmouth College, 5/2009

Retrographic Sensing, MIT Computer Graphics Group, 3/2009

Layer Harmonization for Image Compositing, Adobe Creative Technologies Lab, 10/2008

Lighting Tools for Image Forensics, Adobe Creative Technologies Lab, 5/2008

Lighting Tools for Image Forensics, MIT Computer Graphics Group, 4/2008

Image Statistics for Digital Forensics, Adobe Photoshop team, San Jose, 1/2008  
Inferring Illuminant Direction Estimated from Disparate Sources in Paintings, SPIE 1/2008  
Digital Image Forensics, IWDW'07 keynote #3, Guangzhou, China, 12/2007  
Lighting and Optical Tools for Image Forensics, Ph.D. defense, Hanover, NH, 8/2007  
Exposing Digital Forgeries in Complex Lighting Environments, IH'07, St. Malo, France, 6/2007  
Exposing Digital Forgeries Through Lighting Inconsistencies, MIT, 1/2007  
Exposing Digital Forgeries Through Chromatic Aberration, ACM MM&S '06, Geneva, 9/2006  
Digital Image Forensics, 4th Ann. Information Assurance Symp., Norwich Univ., 3/2006  
Image Forensic Tools for Photoshop, Adobe Intern Showcase, San Jose, 8/2005  
Steganalysis of Recorded Speech, SPIE Symp. on Electronic Imaging, San Jose, 1/2005

AWARDS AND  
SCHOLARSHIPS

Member, Phi Beta Kappa, 1998  
John and Rose Mendelsohn Kurtz Scholarship, UNH, 1999–2000  
Elizabeth Jones Scholarship, UNH, 1999–2000  
Music Department Scholarship, UNH, 1997–2000  
Granite State Scholarship, UNH, 1996–2000  
Robert C. Byrd Honors Scholarship, 1996–2000

INDUSTRY

Postdoc, Adobe Systems Inc., Newton MA, 3/2008–12/2009  
Photoshop engineering intern, Adobe Systems Inc., San Jose, CA, 6/2005–9/2005  
Consultant, Accentus LLC, Hanover, NH, 3/2004–6/2005  
Audio codec researcher, Groove Mobile Inc., Andover, MA, 6/2003–9/2003

TEACHING

Guest Lecturer, *Computational Photography*, MIT, Spring 2010  
Guest Lecturer, *Sensation and Perception*, five lectures, MIT, Spring 2010  
Guest Lecturer, *Sensation and Perception*, four lectures, MIT, Spring 2009  
Guest Lecturer, *Camera Culture*, MIT, Spring 2009  
Guest Lecturer, *Advanced Computational Photography*, MIT, Spring 2009  
Guest Lecturer, *Sensation and Perception*, four lectures, MIT, Spring 2008  
Teaching Assistant, *Introduction to Computer Science*, Dartmouth College, Spring 2003  
Teaching Assistant, *Concepts in Computing*, Dartmouth College, Winter 2003  
Teaching Assistant, *Introduction to Computer Science*, Dartmouth College, Fall 2002

COMMITTEES

Member, Computer Science Research Symposium Committee, 2006