

# VALERIE S. MORASH

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## POSITIONS

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**2015 -            Postdoctoral Research Fellow**, The Smith-Kettlewell Eye Research Institute

## DEGREES

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**Ph.D.            Psychology** <sup>†</sup>  
 University of California, Berkeley, 2014, Advisor Martin Banks

**M.A.            Statistics** <sup>†</sup>  
 University of California, Berkeley, 2013, Advisor David Brillinger

**M.Eng.        Electrical Engineering & Computer Science**  
 Massachusetts Institute of Technology, 2008, Advisor Pawan Sinha

**B.S.            Brain & Cognitive Sciences** <sup>\*</sup>  
 Massachusetts Institute of Technology, 2007

**B.S.            Electrical Science & Engineering** <sup>\*</sup>  
 Massachusetts Institute of Technology, 2007

<sup>†</sup> and <sup>\*</sup> indicate separate but concurrent degrees.

## PEER-REVIEWED PUBLICATIONS

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- 2015            Morash, V.** (2015). Systematic movements in haptic search: Spirals, zigzags, and parallel sweeps. *IEEE Transactions on Haptics*, (accepted).
- 2015            Morash, V.**, Siu, Y. T., Miele, J.A., Hasty, L., & Landau, S. (2015). Guiding novice web workers in making image descriptions using templates. *ACM Transactions on Accessible Computing*, (accepted).
- 2015            Morash, V.** & van der Velden, B. (2015). Determining the bias and variance of a deterministic finger-tracking algorithm. *Behavior Research Methods*, (accepted).
- 2014            Siu, T. S.**, & **Morash, V.** (2014). Teachers of students with visual impairments and their use of assistive technology: Measuring teachers' proficiency and their identification with a community of practice. *Journal of Visual Impairment & Blindness*, 108, 384-398.
- 2014            Morash, V.** & McKerracher, A. (2014). The relationship between tactile graphics and mathematics for students with visual impairments. *Terra Haptica*, 4, 13-22.

## PEER-REVIEWED PUBLICATIONS CONTINUED

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- 2014**      **Morash, V.**, Connell Pensky, A., Tseng, S., & Miele, J. (2014). Effects of using multiple hands and fingers on haptic performance in individuals who are blind. *Perception*, *43*, 569-588.
- 2013**      **Morash, V.**, Connell Pensky, A., & Miele, J. (2013). Effects of using multiple hands and fingers on haptic performance. *Perception*, *42*, 759-777.
- 2012**      **Morash, V.**, Connell Pensky, A., Alfaro, U., & McKerracher, A. (2012). A review of haptic spatial abilities in the blind. *Spatial Cognition & Computation*, *12*, 83-95.
- 2008**      **Morash, V.**, Bai, O., Furlani, S., Lin, P., & Hallett, M. (2008). Classifying EEG signals preceding right hand, left hand, tongue, and right foot movements and motor imageries. *Clinical Neurophysiology*, *119*, 2570-2578.

## PEER-REVIEWED CONFERENCE PAPERS/PROCEEDINGS

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- 2015**      Fusco, G., & **Morash, V.** (2015, October). *The Tactile Graphics Helper: Providing audio clarification for tactile graphics using machine vision*. Paper presented at ASSETS '15: Proceedings of the 17<sup>th</sup> International ACM SIGACCESS Conference on Computers & Accessibility, Lisbon, Portugal (97-106). ACM.
- 2015**      **Morash, V.** (2015, June). *Detection radius modulates systematic strategies in unstructured haptic search*. Paper presented at the World Haptics Conference (WHC), Chicago (1-6). IEEE.

## COMPETITIVE RESEARCH AWARDS, GRANTS, & FELLOWSHIPS

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- 2015**      **Oculus/Facebook Unrestricted Gift to Support Research**  
\$25,000 award in support of haptics research.
- 2014**      **Elizabeth Scott Memorial Award for Outstanding Master's Research**  
Annual award to Berkeley Statistics M.A. student with greatest promise in statistical research.
- 2013**      **UC Berkeley Edward Hildebrand Graduate Fellowship**  
Title: Math achievement in American and Canadian blind students.
- 2013**      **UC Berkeley Sigma Xi Grant-in-Aid of Research**  
Title: Predictors of math achievement in visually impaired students.
- 2012**      **Sigma Xi Grant-in-Aid of Research for Vision-Related Research**  
Title: Tactile map reading strategies in blind and sighted users.
- 2010**      **IES Research in Cognition and Mathematical Education Fellowship**  
University fellowship for 3-years of PhD funding, for students studying mathematics cognition.

## COMPETITIVE AWARDS, GRANTS, & FELLOWSHIPS CONTINUED

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- 2009**      **National Science Foundation Graduate Research Fellowship**  
National fellowship for 3-years of PhD funding, offered to 10% of 10,000 applicants per year.
- 2009**      **National Defense Science and Engineering Graduate Fellowship**  
National fellowship for 3-years of PhD funding, offered to 8% of 2,500 applicants per year.
- 2008**      **Chorafas Foundation Scholarship for Outstanding Master's Research**  
University merit-based award to 2 Master's students per year.
- 2006**      **Society of Women Engineers Guidant Foundation Scholarship**  
National merit-based cash award to 2 undergraduate women per year.

## PEER-REVIEWED TALK & POSTER ABSTRACTS

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- 2015**      **Morash, V.**, & McKerracher, A. (2015, November). *Tactile graphics and Nemeth code for math and science Student performance, difficulties, and implications*. **Talk** presented at the annual Getting in Touch with Literacy Conference, Albuquerque, NM.
- 2015**      McKerracher, A., & **Morash, V.** (2015, November). *Braille oral reading fluency The role of phonological processing*. **Talk** presented at the annual Getting in Touch with Literacy Conference, Albuquerque, NM.
- 2015**      **Morash, V.**, Siu, Y.T., Miele, J., Hasty, L., & Landau, S. (2015, March). *How inexperienced webworkers can author quality image descriptions*. **Talk** presented at the International Technology & Persons with Disabilities Conference (CSUN), San Diego, CA.
- 2014**      Siu, T.S., & **Morash, V.** (2014, March). *TVIs technology proficiency & identification with a community of practice*. **Talk** presented at the International Technology & Persons with Disabilities Conference (CSUN), San Diego, CA.
- 2014**      Landau, S., Miele, J., Siu, Y.T., Hasty, L., & **Morash, V.** (2014, March). *A template-guided system for improving quality of textbook descriptions*. **Talk** presented at the International Technology & Persons with Disabilities Conference (CSUN), San Diego, CA.
- 2011**      van der Velden, B., & **Morash, V.** (2011, November). *Finger tracking in video using ridge detection*. **Poster** presented at the Society for Computers in Psychology (SCiP), Seattle, WA.
- 2011**      Connell Pensky, A., **Morash, V.**, & Miele, J. (2011, CSAIL). *Multiple fingers do more than expand haptic view*. **Talk** presented at the Cognitive Science Association for Interdisciplinary Learning (CSAIL), Hood River, OR.

## PEER-REVIEWED TALK & POSTER ABSTRACTS CONTINUED

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- 2009**      **Morash, V.**, Cherian, T., & Sinha, P. (2009, November). *Using latency to link behavioral skills with neural correlates: Face recognition and the M170*. **Talk** presented at Object Perception, Attention, and Memory (OPAM), Boston, MA.
- 2009**      **Morash, V.**, Cherian, T., & Sinha, P. (2009, May). *What is between face detection and face recognition*. **Poster** presented at the Annual Meeting of the Vision Sciences Society (VSS), Naples, FL.
- 2008**      **Morash, V.**, & Balas, B. (2008, August). *Haptic object recognition and squeeze strength*. **Talk** presented at the European Conference on Visual Perception (ECPV), Utrecht, Netherlands.
- 2008**      **Morash, V.**, Cherian, T., & Sinha, P. (2008, May). *The magnetoencephalography M170 response to degraded images*. **Poster** presented at the Annual Meeting of the Vision Sciences Society (VSS), Naples, FL.
- 2008**      Cherian, T., **Morash, V.**, & Sinha, P. (2008, May). *Time costs of recognizing degraded images*. **Poster** presented at the Annual Meeting of the Vision Sciences Society (VSS), Naples, FL.
- 2006**      **Morash, V.**, Bai, O., Furlani, S., & Hallett, M. (2006, August). *Using the CNV for EEG BCI control: 2-D and 1-D*. **Poster** presented at the Neural Interfaces Workshop (NIW), Bethesda, MD.
- 2005**      Carr, L., Arrington, C., Wieth, M., **Morash, V.**, & Carr, T. (2005, May). *Priming, associative strength, and directionality in the remote associates task*. **Poster** presented at the Annual Meeting of the American Psychological Society (APS), Los Angeles, CA.
- 2002**      Arrington, C., Carr, L., Wieth, M., Welch, D., **Morash, V.**, Burns, B., Carr, T. (2002, May). *Solution priming in the remote associates task*. **Poster** presented at the Annual Meeting of the Midwestern Psychological Association, Chicago, IL.

## INVITED & OTHER (NOT PEER-REVIEWED) PUBLICATIONS

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- 2012**      **Morash, V.**, Connell Pensky, A., & Miele, J. (2012). The Tactile Map Open Stimulus Set for tactile and haptic research. *Journal of Visual Impairment & Blindness*, 106, 501.
- 2007**      **Morash, V.**, Celio, C., & Colins, K. (2007). Maslab's autonomous vision-based robot competition. *Robot Magazine, Summer*, 80-82.
- 2006**      **Morash, V.** (2006). MIT Maslab robot contest. *Robot Magazine, Summer*, 72-75.

## INVITED & OTHER (NOT PEER-REVIEWED) PRESENTATIONS

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- 2015**      **Morash, V.**, Siu, Y. T., Miele, J., Hasty, L., & Landau, S. (2015, October). *Guiding novice web workers in making image descriptions using templates*. **Talk** presented at ASSETS '15: 17<sup>th</sup> International ACM SIGACCESS Conference on Computers & Accessibility, Lisbon, Portugal.

## ACADEMIC AND PROFESSIONAL HONORS

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- 2015**      ACM SIGACCESS ASSETS conference travel grant
- 2015**      World Haptics Conference best paper nominee
- 2012**      Abigail Reynolds Hodgen Fund award for publication costs
- 2008**      European Conference on Visual Perception travel award
- 2007**      Outstanding academics in MIT Brain and Cognitive Sciences award
- 2006**      NIH NINDS exceptional summer student award
- 2005**      Neural Interfaces Workshop travel award

## ADDITIONAL EDUCATION AND TRAINING

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| <b>Statistics</b> | <b>Inter-University Consortium for Political and Social Research (ICPSR)</b><br>Structural Equation Models and Latent Variables, 1-week workshop, 2013<br>Analyzing Developmental Trajectories, 3-day workshop, 2013<br>Maximum Likelihood Estimation for Generalized Linear Models, 4-week workshop, 2012<br>Regression Analysis III: Advanced Methods, 4-week workshop, 2012<br>Data Mining, 2-week lecture, 2012<br>Missing Data: An Introduction to the Analysis of Incomplete Data Sets, 1-week workshop, 2011 |
| <b>Braille</b>    | <b>Hadley School for the Blind</b><br>Contracted Braille, 13-month online course, 2013<br>Uncontracted Braille, 4-month online course, 2011   |

## SKILLS

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- Computing** Expert with Matlab, L<sup>A</sup>T<sub>E</sub>X, & R.  
Experienced with Stata, SPSS, MPlus, PBRT, & C/OpenGL.
- Machining** **Laser Cutting**  
Currently own/use Full Spectrum 40 watt, but also familiar with Epilog machines.
- 3D Printing**  
Currently own/use Makerbot 5th generation printer.
- Hand & Power Tools**  
Own/use full set of tools, including mallets, fasteners, jig saw, table saw, etc.
- Electrical** **Controllers**  
Phidget interface for servo motors and linear actuators with Matlab & C.  
E.g., moving platforms for stimulus delivery, automated 2-pt threshold machine, etc.
- Violin** **Private Study & Performance, Since 1991**  
Current instruction from Monika Gruber at the San Francisco Conservatory of Music.

## TEACHING EXPERIENCE

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- 2013 Spring** **Introduction to Time Series**  
Teaching Assistant for Dr. David Brillinger, UC Berkeley, Statistics.
- 2009 Spring** **Introductory Statistics**  
Teaching Assistant for Dr. Jack Gallant, UC Berkeley, Psychology.
- 2008 Fall** **Visual Perception**  
Teaching Assistant for Dr. Stephen Palmer, UC Berkeley, Psychology.
- 2005 - 2007** **Vision-Based Autonomous Robotics (MASLab)**  
Instructor and Organizer, MIT, Electrical Engineering & Computer Science.