

Arman Abrahamyan

Current Position Postdoctoral Research Associate, Gardner Lab, Stanford University

Apr 2015 – Mar 2016

- *Research area:* Perceptual decision making and decision biases combining visual psychophysics, computational modelling and functional magnetic resonance imaging (fMRI)

Previous Position Postdoctoral Researcher, Gardner Research Team, RIKEN Brain Science Institute, Japan

Jun 2012 – Mar 2015

Postdoctoral Research Associate, School of Psychology, University of Sydney, Australia

Jun 2008 – May 2012

- *Research area:* Visual psychophysics combined with Transcranial Magnetic Stimulation (TMS).
- *Contribution to the field:* Demonstrated a novel use of single-pulse subthreshold TMS to augment the perception of visual stimuli, which can be used as a new approach to functional brain mapping. Developed an open-source improved procedure for measuring phosphene thresholds.
- *Acquired skills:* Visual psychophysics, signal detection theory, adaptive staircases, Psychtoolbox, processing of structural and functional MRI data in SPM, Magstim Rapid² stimulator, TMS neuronavigation systems (Brainsight and Softaxic), setting up a TMS lab.

Education PhD in Experimental Psychology, Western Sydney University, Australia

2004 – 2008

- Thesis: “Attentional Capture of Emotional Static and Dynamic Hand Gestures and Faces: The Effect of Valence in a Novel Stroop-based Paradigm”

Principle supervisor: Professor Catherine Stevens, Western Sydney University

Associate supervisor: Professor Andreas Ioannides, RIKEN Brain Science Institute, Japan

M.S. in Applied Mathematics, Yerevan State University, Armenia

1992 – 1997

- Minor: Computer Science
- Thesis: “Implemented Model of Batch Text Editor”. Passed with “High Distinction”

Peer-reviewed Journal Publications

- Abrahamyan, A., Clifford, C. W. G., Arabzadeh, E., Harris, J. A. (2015). Low Intensity TMS enhances perception of visual stimuli. *Brain Stimulation*.
- Lloyd D.A., Abrahamyan A., Harris J.A. (2013) Brain-Stimulation Induced Blindsight: Unconscious Vision or Response Bias? *PLoS ONE*.
- Abrahamyan, A., Clifford, C. W. G., Arabzadeh, E., Harris, J. A. (2011). Improving visual sensitivity with subthreshold transcranial magnetic stimulation. *Journal of Neuroscience*.
- Abrahamyan, A., Clifford, C. W. G., Ruzzoli, M., Phillips, D., Arabzadeh, E., & Harris, J. A. (2011). Accurate and Rapid Estimation of Phosphene Thresholds (REPT). *PLoS ONE*.
- Ruzzoli, M., Abrahamyan, A., Clifford, C. W. G., Marzi, C. A., Miniussi, C., & Harris, J. A. (2011). The effect of TMS on visual motion sensitivity: an increase in neural noise or a decrease in signal strength? *Journal of Neurophysiology*.
- Okazaki, Y., Abrahamyan, A., Stevens, C. J., & Ioannides, A. A. (2009). Wired for Her Face? Male Attentional Bias for Female Faces. *Brain Topography*.
- Okazaki, Y., Abrahamyan, A., Stevens, C.J., & Ioannides, A.A. (2008). The timing of face selectivity and attentional modulation in visual processing. *Neuroscience*.

Published

- Abrahamyan, A. & Gardner, J. L. (2013), Naturally occurring and experimentally

Abstracts

induced choice history biases in human observers. Neuroscience Meeting Planner, San Diego, CA: Society for Neuroscience, 2013. Abstract.

- Abrahamyan, A. & Gardner, J. L. (2013), Past failures can bias human decisions. The 36th Annual Meeting of Japan Neuroscience Society, Kyoto, Japan.
- Abrahamyan, A. & Gardner, J. L. (2013), Past failures bias human decisions. 10th Annual Meeting, Computational and Systems Neuroscience (COSYNE) Conference Abstracts, Salt Lake City, USA.
- Abrahamyan, A., Clifford, C. W. G., Arabzadeh, E., & Harris, J. A. (2012). Low intensity TMS can facilitate identification of visual stimuli. Paper presented at the Australasian Experimental Psychology Conference, Sydney, Australia
- Abrahamyan, A., Clifford, C. W. G., Arabzadeh, E., & Harris, J. A. (2010). Improving visual sensitivity with subthreshold transcranial magnetic stimulation. Program No. 674.14/LL7 2010 Neuroscience Meeting Planner, San Diego, CA: Society for Neuroscience, 2010. Abstract.
- Ruzzoli, M., Abrahamyan, A., Clifford, C. W. G., Miniussi, C., & Harris, J. A. (2010). Effects of noise and transcranial magnetic stimulation on sensitivity to visual motion. Paper presented at the Australasian Experimental Psychology Conference, Melbourne, Australia.
- Abrahamyan, A., Clifford, C. W. G., Arabzadeh, E., & Harris, J. A. (2010). Low intensity transcranial magnetic stimulation can improve detection of visual stimuli. Paper presented at the Australasian Experimental Psychology Conference, Melbourne, Australia.
- Abrahamyan, A., Clifford, C. W. G., & Harris, J. A., (2010). Fast method for precise phosphene threshold identification in research using transcranial magnetic stimulation. Paper presented at the Australian Neuroscience Conference, Sydney, Australia.
- Abrahamyan, A., Clifford, C. W. G., Arabzadeh, E., & Harris, J. A. (2010). Low intensity transcranial magnetic stimulation can improve detection of visual stimuli. Paper presented at the Australian Neuroscience Conference, Sydney, Australia. Abstract.
- Abrahamyan, A., Stevens, C., & Ioannides, A. (2009). Attentional capture of emotional hand gestures and faces: Effects of static and dynamic stimuli. Australian Journal of Psychology. Abstract.
- Burnham, D., Abrahamyan, A., Cavedon, L., Davis, C., Hodgins, A., Kim, J., et al. (2008). From talking to thinking heads: report 2008. Paper presented at the International Conference on Auditory-Visual Speech Processing (AVSP), Queensland, Australia.
- Powers, D. M., Leibbrandt, R., Pfitzner, D., Luerssen, M., Lewis, T., Abrahamyan, A., Stevens, K. (2008). Language teaching in a mixed reality games environment. Proceedings of the 1st international conference on Pervasive Technologies Related to Assistive Environments.
- Okazaki, Y., Abrahamyan, A., Stevens, C., & Ioannides, A. A. (2006). Timing of face specificity in Fusiform Gyrus responses to stimuli in different parts of the visual field. Neuroscience Research, 55 (Supplement 1), S222-S222.
- Abrahamyan, A., Stevens, C., & Ioannides, A. (2005). The Effect of Emblematic Hand Gestures on Visual Attention. Australian Journal of Psychology, 57(Supplement 1).

Scholarships and Awards

- MARCS Institute for Brain, Behaviour and Development tuition scholarship to undertake PhD at the Western Sydney University, 2004 – 2008
- Travel Award – Experimental Psychology Conference 2005, Melbourne, Australia
- Tuition scholarship to undertake Master's degree in Applied Mathematics and Computer Science at the Yerevan State University, 1992 - 1997
- Letter of gratitude from the Military Prosecutor of the Republic of Armenia for faultless service and excellent quality of performed work, 1999

Invited Talks

- Non-invasive Brain Stimulation, Postgraduate training class, Stanford University, CA,

and Colloquia

Jun 2015

- Less Death by PowerPoint, BSI Postdoctoral Fellow Association, RIKEN, Japan, Sep 2014
- Improving Identification of Weak Stimuli with Weak TMS, CBS meeting, RIKEN Brain Science Institute, Sep 2012, Japan
- Phosphene Thresholds, and Augmenting Visual Perception with Subthreshold TMS, MARCS, Western Sydney University, Australia, Oct 2011
- TMS: History, Design, Mechanisms, Coils and Calibration, University of Sydney, Perception Group Meeting, Australia, 2011
- Accurate and Rapid Estimation of Phosphene Thresholds, TMS Workshop, Macquarie University, Australia, 2011
- Dipping into Dip: History, Mechanisms, Properties and Applications of the Dipper Function, Perception Group Meeting, University of Sydney, Australia, 2009
- Let's (Briefly) Break the Brain: Introduction to TMS and an Overview of Current Projects, Perception Group Meeting, University of Sydney, Australia, 2008
- The Effect of Affective Hand Gestures on Visual Attention, Digital Humanities Show & Tell, Western Sydney University, Australia, 2006

Ad-hoc Reviewer

- Journal of Neuroscience (1)
- Journal of Neurophysiology (2)
- Neuropsychologia (1)
- PLoS One (2)
- Optometry and Vision Science (1)

Neuroimaging Skills

- Designing psychophysical experiments combined with Transcranial Magnetic Stimulation
- Brainsight neuronavigation system for Transcranial Magnetic Stimulation
- Softaxic neuronavigation system for Transcranial Magnetic Stimulation
- Experience in designing Magnetoencephalography (MEG) experiments
- Processing of structural and functional MRI data in SPM
- Experiment programming and experimental control using Presentation stimulus delivery package
- Precise timing of a visual stimulus onset and offset using a photodiode and oscilloscope
- Participants' preparation including electrode placement to achieve optimal conductivity
- Head shape digitisation using 3D systems such as Vivid 700 and Fastrac Polhemus
- Co-registration of participants digitised head and the MEG head localisation coils for the data visualisation using participant's MRI
- Software implementation for advanced data processing and data visualisation using Interactive Data Language (IDL)
- Noise removal from the MEG signal using advanced techniques such as Independent Component Analysis (ICA)
- MEG data analysis using custom software and DataEditor from CTF Systems Inc.

Past Positions

Research Assistant, Western Sydney University, Australia

Apr 2008 – Jun 2008

- Literature search in the areas of Embodied Conversational Agents and Phonetics
- Setup and conduct experiments for the user evaluation of Embodied Conversational Agents
- Setup and data collection using Tobii eye-movement system
- Experiment programming
- Data and statistical analyses
- Assistance with the data collection

Research Assistant, Western Sydney University, Australia

Sep 2004 – Nov 2007

- Technical assistance with experiment programming and data analysis
- Troubleshooting computer software and hardware problems
- Experimental hardware and software setup
- Management of data archiving

Visiting Scientist, RIKEN Brain Science Institute, Japan

May 2005 – Aug 2005

- Participate in designing and implementing a Magnetoencephalography (MEG) experiment
- Participants' preparation including sensor placement and 3D head digitisation
- MEG data collection and data analysis
- Software programming for data visualisation and data analysis

**Industry
experience**

Software Developer, RIKEN Brain Science Institute, Japan

Mar 2000 – Oct 2003

- Design and implementation of various programs intended for the MEG signal processing
- Software implementation of contemporary analysis methods such as mountain clustering, information discrepancy, and wavelet analysis
- Development of software for the Electromyography (EMG) signal processing
- MRI data processing
- MEG data analysis of visual and auditory experiments using custom and standard software packages

Network and Systems Administrator, Armenian Computer Centre, Armenia

Jul 1999 – Feb 2000

- Administration of large scale intranet network with complex topology
- Coordination and joining of the different types of networks (cable, E1, radio modem, dial-up, leased line)
- Design and configuration of the Intranet's new segments
- Design and implementation of the software for Intranet efficient monitoring and administration
- Unix server administration with more than 300 users
- Installation and maintenance of different kinds of the Internet servers (e.g. mail server, web server, proxy server, dial-up server)

Computer Technician, Military Prosecutor's Office of RA, Armenia

Nov 1997 – 1999

- Design and implementation of the software for the automated processing of documents
- Database design and implementation for effective use and access to the complex structured data
- Personnel training to acquire specialist software skills
- Computer network design, installation, configuration, and administration

Network and Systems Administrator, Noyan-Tapan Agency, Armenia

Jun 1997 – Nov 1997

- Implemented software for the fast processing and delivery of the news on the web
- Internet/Intranet network support and administration
- Installation and maintenance of various software packages
- Hardware and software troubleshooting

Supervision

- Supervised a group of three postgraduate diploma students to collect and analyse data for two experiments
- Assisted a PhD and an Honours student

**Department
Service**

- Organising Perception Group weekly meetings, University of Sydney

- Setting up equipment for MARCS weekly meetings, Western Sydney University
- ‘Professional and Academic Development**
- Statistical Analysis of fMRI Data by Martin Lindquist, 6 week Coursera course, 2014 (<http://bit.ly/1HtLtCi>)
 - RIKEN Brain Science Training program, weekly lectures, 2012 - 2013
 - Early Career Researcher Program, 7 half-day workshop, University of Sydney, Sydney, Australia, 2009
 - Summer School on Psychoacoustics, Western Sydney University, Sydney, Australia, 2004
 - “Critical Thinking”, 2 days workshop, Western Sydney University, Sydney, Australia, 2004
 - “Building an Argument”, 2 days workshop, Western Sydney University, Sydney, Australia, 2004
 - “BrainVoyager” fMRI data visualisation software, 2 days training course, Tokyo, Japan, 2002
- Computer Skills**
- Operating Systems and Programming Languages**
- MS DOS, Windows 3.11/95/98/ME/NT/2000/XP/Vista, Mac OS, Unix (Solaris, Linux, FreeBSD)
 - Expertise: C, Matlab, IDL, Object Pascal. Proficiency: C++, Python, Perl, Assembly (x86 architecture)
- Office Suite, Multimedia and Other Skills**
- Proficient in using and programming in Microsoft Office
 - Corel Draw Suite, Adobe Premiere, Ulead VideoStudio
 - PC hardware/software installation/troubleshooting/repair skills
 - Statistical programs: R (I love R!), SPSS, WinPsy, GPower
- Memberships**
- Society for Neuroscience
 - The Japan Neuroscience Society
- Languages**
- English, Russian: speak fluently, read/write with high proficiency, good communication skills. Armenian: native language. Japanese: basic level
- Hobbies & Interests**
- Hiking, reading, learning, and great conversations