Brian Maniscalco

Department of Cognitive Sciences
School of Social Sciences
University of California, Irvine
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Academic and Research Experience

2020 - present	Associate Project Scientist (PI: Megan Peters) Department of Cognitive Sciences, School of Social Sciences, UC Irvine
2018 - 2019	Assistant Researcher (PI: Megan Peters) Department of Bioengineering, Bourns College of Engineering, UC Riverside
2016 - 2017	Postdoctoral Fellow (PI: Biyu Jade He) Neuroscience Institute, NYU Langone Medical Center
2013 - 2016	Postdoctoral Fellow (PI: Biyu Jade He) National Institute of Neurological Disorders and Stroke, National Institutes of Health
2008 - 2013	Ph.D. in Experimental Psychology (PI: Hakwan Lau) Department of Psychology, Columbia University
2007 - 2008	Research Assistant and Lab Manager (PI: Hakwan Lau) Department of Psychology, Columbia University
2006 - 2007	Research Assistant and Lab Manager (PI: Jennifer Mangels) Department of Psychology, Columbia University
2005 - 2006	Research Volunteer (PI: Jennifer Mangels) Department of Psychology, Columbia University

Education

2008 - 2013	Ph.D., M.Phil., M.A. in Experimental Psychology (Advisor: Hakwan Lau) Department of Psychology Columbia University, New York, NY Dissertation: High-level cognitive and neural contributions to conscious awareness and metacognition in visual perception
2005 - 2007	School of Continuing Education Columbia University, New York, NY
1999 - 2003	B.S. in Computer Science, Concentration in Cognitive Science College of Engineering Cornell University, Ithaca, NY

Peer-reviewed journal articles

Asterisks denote co-first authors.

1. Rahnev, D., Desender, K., Lee, A. L., Adler, W. T., Aguilar-Lleyda, D., Akdoğan, B., ... , **Maniscalco, B.**, … & Bègue, I. (2020). The confidence database. *Nature human behaviour*, 1-8. https://doi.org/10.1038/s41562-019-0813-1

2. **Maniscalco, B.**, Lee, J. L., Abry, P., Lin, A., Holroyd, T., He, B. J. (2018). Neural integration of stimulus history underlies prediction for naturalistically evolving sequences. *The Journal of Neuroscience, 38*(6), 1779–17. https://doi.org/10.1523/JNEUROSCI.1779-17.2017

3. Ruby, E., **Maniscalco, B**., & Peters, M. A. (2018). On a 'failed' attempt to manipulate visual metacognition with transcranial magnetic stimulation to prefrontal cortex. *Consciousness and Cognition, 62*, 34–41. https://doi.org/10.1016/j.concog.2018.04.009

4. Baria, A. T.*, **Maniscalco, B.***, He, B. J. (2017). Initial-state-dependent, robust, transient neural dynamics encode conscious visual perception. *PLOS Computational Biology*, *13*(11), e1005806. https://doi.org/10.1371/journal.pcbi.1005806

5. Peters, M. A. K.*, Thesen, T.*, Ko, Y. D.*, **Maniscalco, B.**, Carlson, C., Davidson, M., Doyle, W., Kuzniecky, R., Devinsky, O., Halgren, E., Lau, H. (2017). Human subjects under-utilize decision-incongruent evidence in the brain when computing perceptual confidence. *Nature Human Behavior,* 1(7), s41562-017. https://doi.org/10.1038/s41562-017-0139

6. **Maniscalco, B.**, McCurdy, L. Y., Odegaard, B., Lau, H. (2017). Limited cognitive resources explain a tradeoff between perceptual and metacognitive vigilance. *The Journal of Neuroscience*, 37(5), 1213-1224. https://doi.org/10.1523/JNEUROSCI.2271-13.2016

7. **Maniscalco, B.**, & Lau, H. (2016). The signal processing architecture underlying subjective reports of sensory awareness. *Neuroscience of Consciousness, 2016*(1), 1–41. https://doi.org/10.1093/nc/niw002

8. **Maniscalco, B.**, Peters, M. A. K., & Lau, H. (2016). Heuristic use of perceptual evidence leads to dissociation between performance and metacognitive sensitivity. *Attention, Perception & Psychophysics, 78*(3), 923–937. https://doi.org/10.3758/s13414-016-1059-x

9. Lin, A., **Maniscalco, B.**, & He, B. J. (2016). Scale-Free Neural and Physiological Dynamics in Naturalistic Stimuli Processing. *eNeuro*, 3(5), e0191–16.2016. https://doi.org/10.1523/ENEURO.0191-16.2016

10. **Maniscalco, B.**, Lau, H. (2015). Manipulation of working memory contents selectively impairs metacognitive sensitivity in a concurrent visual discrimination task. *Neuroscience of Consciousness, 2015*(1), niv002. https://doi.org/10.1093/nc/niv002

11. Douglas, Z.*, **Maniscalco, B.***, Hallett, M., Wassermann, E. M., He, B. J. (2015). Modulating conscious movement intention by noninvasive brain stimulation and the underlying neural mechanisms. *The Journal of Neuroscience*, *35*(18), 7239-7255. https://doi.org/10.1523/JNEUROSCI.4894-14.2015

12. Koizumi, A., **Maniscalco, B.**, & Lau, H. (2015). Does perceptual confidence facilitate cognitive control? *Attention, Perception, and Psychophysics, 77*(4), 1295–1306.

https://doi.org/10.3758/s13414-015-0843-3

13. Fleming, S. M., **Maniscalco, B.**, Amendi, N., Ro, T., Lau, H. (2015). Action specific disruption of visual metacognition. *Psychological Science, 26*(1), 89-98. https://doi.org/10.1177/0956797614557697

14. Morales, J., Solovey, G., **Maniscalco, B.**, Rahnev, D., de Lange, F. P., & Lau, H. (2015). Low attention impairs optimal incorporation of prior knowledge in perceptual decisions. *Attention, Perception, and Psychophysics, 77*(6), 2021–2036. https://doi.org/10.3758/s13414-015-0897-2

15. McCurdy, L. Y., **Maniscalco, B.**, Metcalfe, J., Liu, K. Y., De Lange, F. P., & Lau, H. (2013). Anatomical Coupling between Distinct Metacognitive Systems for Memory and Visual Perception. *The Journal of Neuroscience*, *33*(5), 1897–1906. https://doi.org/10.1523/JNEUROSCI.1890-12.2013

16. **Maniscalco, B.**, Bang, J. W., Iravani, L., Camps-Febrer, F., & Lau, H. (2012). Does response interference depend on the subjective visibility of flanker distractors? *Attention, Perception, and Psychophysics*, *74*(5), 841–851. https://doi.org/10.3758/s13414-012-0291-2

17. **Maniscalco, B.**, & Lau, H. (2012). A signal detection theoretic approach for estimating metacognitive sensitivity from confidence ratings. *Consciousness and Cognition*, *21*(1), 422–430. https://doi.org/10.1016/j.concog.2011.09.021

18. Rahnev, D. A., **Maniscalco, B.**, Luber, B., Lau, H., & Lisanby, S. H. (2012). Direct injection of noise to the visual cortex decreases accuracy but increases decision confidence. *Journal of Neurophysiology*, *107*(6), 1556–1563. https://doi.org/10.1152/jn.00985.2011

19. Mangels, J. A., Good, C., Whiteman, R. C., **Maniscalco, B.**, & Dweck, C. S. (2012). Emotion blocks the path to learning under stereotype threat. *Social Cognitive and Affective Neuroscience*, *7*(2), 230-241. https://doi.org/10.1093/scan/nsq100

20. Rahnev, D., **Maniscalco, B.**, Graves, T., Huang, E., de Lange, F. P., & Lau, H. (2011). Attention induces conservative subjective biases in visual perception. *Nature Neuroscience*, *14*(12), 1513–1515. https://doi.org/10.1038/nn.2948

21. Persaud, N., Davidson, M., **Maniscalco, B.**, Mobbs, D., Passingham, R. E., Cowey, A., & Lau, H. (2011). Awareness-related activity in prefrontal and parietal cortices in blindsight reflects more than superior visual performance. *NeuroImage*, *58*(2), 605–611. https://doi.org/10.1016/j.neuroimage.2011.06.081

22. Rounis, E., **Maniscalco, B.**, Rothwell, J. C., Passingham, R. E., Lau, H. (2010). Theta-burst transcranial magnetic stimulation to the prefrontal cortex impairs metacognitive visual awareness. *Cognitive Neuroscience*, *1*(3), 165–175. https://doi.org/10.1080/17588921003632529

Book chapters and commentaries

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1. **Maniscalco, B.**, & Lau, H. (2014). Signal detection theory analysis of type 1 and type 2 data: meta-d', response-specific meta-d', and the unequal variance SDT model. In S. M. Fleming & C. D. Frith (Eds.), *The Cognitive Neuroscience of Metacognition* (pp.25-66). Springer, Berlin, Heidelberg.

2. Lau, H., **Maniscalco, B.** (2010). Should confidence be trusted? *Science*, *329*(5998), 1478–1479. https://doi.org/10.1126/science.1195983

3. Graves, T., **Maniscalco, B.**, & Lau, H. (2010). Volition and the Function of Consciousness. In W. Sinnott-Armstrong & L. Nadel (Eds.), *Conscious Will and Responsibility: A Tribute to Benjamin Libet* (pp.109-123). Oxford University Press.

4. Shaver, E., **Maniscalco, B.**, Lau, H. C. (2008). Awareness as Confidence. *Anthropology and Philosophy, 9*(1/2), 58–65. https://philpapers.org/rec/SHAAAC-4

5. **Maniscalco, B.**, Lau, H. C. (2007). The importance of neutral conditions: Reply to Leonard and Chiu's review. *J Neurosci* 27(42):11170-11171.

Invited Talks

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1. Tuned normalization in perceptual decision-making circuits can explain seemingly suboptimal confidence behavior. (2019). Vision Sciences Society. St. Pete Beach, FL, USA.

2. Is the architecture of conscious processing dual-route or hierarchical? Multiple dissociations between subjective awareness and objective task performance support the hierarchical model. (2016). Association for the Scientific Study of Consciousness. Buenos Aires, AR.

3. Modulating Conscious Movement Intention with Noninvasive Brain Stimulation. (2015). Organization for Human Brain Mapping. Honolulu, HI, USA.

4. Neuroscience investigations of the Libet paradigm. (2008). Towards a Science of Consciousness. Tucson, AZ, USA.

Conference presentations

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1. **Maniscalco, B.**, Castaneda, O. G., Rajananda, S., Morales, J., Odegaard, B., Peters, M.A.K. (2019). Optimizing matched-performance, different-awareness stimuli to experimentally isolate awareness from performance confounds. (Association for the Scientific Study of Consciousness, London, ON, Canada)

2. **Maniscalco, B.**, Lau, H., Peters, M.A.K. (2018). Testing a Tuned Normalization Model of Confidence with fMRI. (Computational Neuroimaging and Neuroengineering Symposium, Riverside, CA, USA)

3. Peters, M.A.K., Thesen, T., Ko, Y.D., **Maniscalco, B.**, Carlson, C., Davidson, M., Doyle, W., Kuzniecky, R., Devinsky, O., Halgren, E., & Lau, H. (2017). Human ECoG reveals dissociable calculations for perceptual decisions and confidence judgments. (Organization for Human Brain Mapping, Vancouver, BC, Canada)

4. **Maniscalco, B.**, Abry, P., Holroyd, T., He, B. J. (2015). Neural mechanisms of temporal prediction in naturalistic auditory stimuli. (Society for Neuroscience, Chicago, IL, USA)

5. **Maniscalco, B.**, Douglas, Z., Hallett, M., Wassermann, E. M., He, B. J. (2015). Modulating Conscious Movement Intention with Noninvasive Brain Stimulation. (Organization for Human Brain Mapping, Honolulu, HI, USA)

6. **Maniscalco, B.**, Abry, P., He, B. J. (2015). Behavioral and neural indices of the extraction of scale-free statistical information from auditory stimuli in human subjects. (Computational and Systems Neuroscience, Salt Lake City, UT, USA)
7. **Maniscalco, B.**, He, B. J. (2014). Behavioral and neural indices of the extraction of scale-free statistical information from auditory stimuli in human subjects. (National Institute of Neurological Disorders and Stroke Intramural Retreat, Potomac, MD, USA)
8. Song, M., **Maniscalco, B.**, Koiziumi, A., Lau, H. (2013). A new method for manipulating metacognitive awareness while keeping performance constant. (Association for the Scientific Study of Consciousness, San Diego, CA, USA)
9. Koizumi, A., **Maniscalco, B**., Lau, H. (2013). The effects of metacognitive awareness on top-down cognitive control. (Association for the Scientific Study of Consciousness, San Diego, CA, USA)
10. **Maniscalco, B.**, Lau, H. (2013). Dissociations and suboptimalities in metacognitive performance due to unbalanced weighting of perceptual evidence can be partially remediated by task instruction and performance feedback. (Vision Sciences Society, Naples, FL, USA)
11. Lau, H., **Maniscalco, B.** (2013). Short-term fatigue of perceptual decision making and metacognition. (Vision Sciences Society, Naples, FL, USA)
12. Koizumi, A., **Maniscalco, B.**, Apple, A., Yan, X., Lau, H. (2013). The effects of metacognitive awareness on top-down cognitive control. (Vision Sciences Society, Naples, FL, USA)
13. Solovey, G., **Maniscalco, B.**, Rahnev, D., Lau, H. (2013). Inflation of subjective perception in peripheral vision. (Vision Sciences Society, Naples, FL, USA)
14. Rahnev, D., **Maniscalco, B.**, Lau, H. (2012). Direct injection of neural noise leads to double dissociation between accuracy and confidence. (Vision Sciences Society, Naples, FL, USA)
15. **Maniscalco, B.**, Lau, H. (2011). On a distinction between detection and discrimination: metacognitive advantage for signal over noise. (Vision Sciences Society, Naples, FL, USA)
16. **Maniscalco, B.**, Lau, H. C. (2010). Comparing Signal Detection Models Of Perceptual Decision Confidence. (Vision Sciences Society, Naples, FL, USA)
17. Davidson, M., Persaud, N., **Maniscalco, B.**, Mobbs, D., Passingham, R.E., Cowey, A., Lau, H. C. (2010). Awareness-related activity in prefrontal and parietal cortices reflects more than superior performance capacity: A blindsight case study. (Vision Sciences Society, Naples, FL, USA)
18. **Maniscalco, B.**, Rounis, E., Rothwell, J. C., Passingham, R. E., Lau, H. C. (2009). Theta-burst transcranial magnetic stimulation to the prefrontal cortex impairs metacognitive visual awareness. (Vision Sciences Society, Naples, FL, USA)
19. **Maniscalco, B.**, Guo, W., Lau, H. C. (2009). The signal processing architecture of conscious and unconscious perception. (Association for the Scientific Study of Consciousness, Berlin, DE)
20. **Maniscalco B.**, Lau, H. C. (2009). Evaluating signal detection models of perceptual decision confidence. (Computational and Systems Neuroscience, Salt Lake City, UT, USA)

21. Rahnev, D., **Maniscalco, B**., Huang, E., Lau, H. C. (2009). Qualitative differences between decision-making for strongly and weakly attended stimuli. (Computational and Systems Neuroscience, Salt Lake City, UT, USA)
22. Rahnev, D., **Maniscalco, B**., Huang, E., Lau, H. C. (2009). Inattention boosts subjective visibility: Implications for inattentional and change blindness. (Vision Sciences Society, Naples, FL, USA)
23. Rahnev, D., **Maniscalco, B**., Huang, E., Bahdo, L., Lau, H. C. (2009). Inattention boosts subjective visibility: Implications for inattentional and change blindness. (Association for the Scientific Study of Consciousness, Berlin, DE)
24. Mangels, J. A., **Maniscalco, B.**, Joerger, T. (2007). Remediating false memory errors with corrective feedback: an ERP study. (Cognitive Neuroscience Society Annual Meeting, New York, NY, USA)
25. Mangels, J. A., Good, C. D., **Maniscalco, B.**, Dweck, C. S. (2007). Breaking the vicious cycle: Understanding the effects of stereotype threat on performance and learning in college-level math. (Institute of Education Sciences Research Conference, Washington DC, USA)

Departmental Talks

1. Neural mechanisms of temporal prediction in naturalistic auditory stimuli. (2015). National Institutes of Health, Bethesda, MD.
2. Behavioral and neural indices of the extraction of scale-free statistical information from auditory stimuli in human subjects. (2014). National Institutes of Health, Bethesda, MD.
3. High-level cognitive and neural contributions to conscious awareness and metacognition in visual perception. (2013). National Institutes of Health, Bethesda, MD.
4. High-level cognitive and neural contributions to conscious awareness and metacognition in visual perception. (2013). Columbia University, New York, NY.
5. Modeling perceptual metacognition. (2010). Columbia University, New York, NY.
6. The signal processing architecture of conscious and unconscious perception. (2009). Columbia University, New York, NY.

Professional service (reviewer)

- Behavior Research Methods
- Cerebral Cortex
- Consciousness & Cognition
- Cortex
- Frontiers Psychology
- Human Brain Mapping
- Journal of Experimental Psychology: General
- The Journal of Neuroscience
- Journal of Psychiatry and Neuroscience
- Journal of Vision

- Nature Communications
- Neuroscience of Consciousness
- PLoS One
- PNAS
- Psychological Methods
- Psychological Review
- Scientific Reports
- Social Cognitive and Affective Neuroscience

Professional memberships

- Association for the Scientific Study of Consciousness
- Organization for Human Brain Mapping
- Society for Neuroscience
- Vision Sciences Society

Teaching

Graduate teaching fellow
Columbia University, Department of Psychology

Fall 2012 Course: Sensation and Perception (Supervisor: Sarah Shuwairi)
Student rating*: Excellent

Fall 2011 Course: Statistics for Behavioral Scientists (Supervisor: Brian Rakitin)
Student rating*: Very Good / Excellent

Independently devised and delivered lesson plans for a weekly lab section in addition to assisting with instruction of main course lecture.

Fall 2010 Course: Cognition: Memory & Stress (Supervisor: Janet Metcalfe)
Student rating*: Excellent

Fall 2009 Course: Thinking & Decision Making (Supervisor: Dave Krantz)
Student rating*: Excellent

Fall 2008 Course: Science of Psychology (Supervisor: Patricia Lindemann)
Student rating*: Very Good

* "Student rating" indicates median student rating of overall TA effectiveness on a course evaluation form filled out anonymously by students after completion of the course, with options "poor," "fair," "good," "very good," and "excellent."

Lecturer
Columbia University, Department of Psychology

Fall 2012 Guest lecture
Course: Sensation and Perception (Supervisor: Sarah Shuwairi)

Fall 2011 Lab section leader
Course: Statistics for Behavioral Scientists (Supervisor: Brian Rakitin)

Mentoring and supervision

National Institutes of Health, NINDS 2013 - 2016

- Supervised research activities and taught concepts from experimental design, data analysis, statistics, modeling, and programming for 3 post-baccalaureate students and 1 graduate student.
- Worked intensively for one year with a post-baccalaureate student through all phases of data collection, analysis, and write-up to support her in achieving a first author publication (Lin, Maniscalco, & He, 2016).

Columbia University, Department of Psychology 2008 - 2013

- Supervised research activities and taught concepts from experimental design, data analysis, statistics, modeling, and programming for 18 undergraduate research assistants and 2 high school students.

Last updated: April 7, 2020