

**Jessica M. Ross, Ph.D.**

Postdoctoral Research Fellow  
 Veterans Affairs Palo Alto Healthcare System  
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**Education**

|           |   |
|-----------|---|
| 2021-     | Postdoctoral Research Fellowship, Veterans Affairs Palo Alto Healthcare System, Stanford University School of Medicine, Palo Alto                               |
| 4-10/2021 | Postdoctoral Researcher, Stanford University School of Medicine, Palo Alto  |
| 2018-2021 | Postdoctoral Research Fellowship, Harvard Medical School, Berenson-Allen Center for Noninvasive Brain Stimulation, Beth Israel Deaconess Medical Center, Boston |
| 2018      | Ph.D. Cognitive and Information Sciences, University of California, Merced  |
| 2011      | A.S. Biology (with honors), Sacramento City College   |
| 2011      | A.A. Psychology (with honors), Sacramento City College  |
| 2008      | B.A. Music (Ethnomusicology emphasis), University of California, Davis  |
| 2008      | B.A. Italian Studies, University of California, Davis   |

**Additional Training**

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|------|---|
| 2018 | Intensive Course in Transcranial Magnetic Brain Stimulation, Harvard Medical School, Boston, Massachusetts  |
| 2018 | Kavli Summer Institute in Cognitive Neuroscience, Tahoe, California   |
| 2017 | ERP Boot Camp, Center for Mind and Brain, University of California, Davis   |
| 2017 | UC Music Experience Research Community Initiative (UC MERCI) Student Exchange, Swartz Center for Computational Neuroscience, University of California, San Diego (Hosts: Scott Makeig and John Iversen) |
| 2016 | UC Retreat Workshop on Research in Music Experience and Communication, Marconi, CA  |
| 2016 | Kavli Summer Institute in Cognitive Neuroscience, University of California, Santa Barbara   |
| 2016 | UC Music Experience Research Community Initiative (UC MERCI) Student Exchange, Swartz Center for Computational Neuroscience, University of California, San Diego (Hosts: Scott Makeig and John Iversen) |
| 2015 | UC MERCI Symposium/Workshop on Research on Music Experience and Communication, University of California, Los Angeles  |
| 2015 | MathWorks Seminar: Data Analysis and Visualization with MATLAB  |
| 2015 | Transcranial Magnetic Stimulation (TMS) Methods and Practice, Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles   |
| 2015 | Generalized Linear Model Workshop, University of California, Merced (Bodo Winter)   |
| 2014 | Advanced Training Institute on Non-Linear Methods for Psychological Science, American Psychological Association, University of Cincinnati, Ohio   |
| 2014 | Dynamics of Music and Language Summer School, University of California, Merced Center for Human Adaptive Systems and Environments (CHASE)   |
| 2012 | Auditory Neuroscience (Graduate Coursework), UC Davis Extension   |
| 2011 | Cognitive Neuroscience and Group Study (Graduate Coursework), UC Davis Extension  |
| 2008 | Summer Abroad Folk Music Program in Ljubljana, Slovenia   |
| 2006 | Spring Quarter Abroad Language and Culture Program in Syracuse, Sicily  |

**Research Articles**

1. Ross, J.M., Ozdemir, R.A., Lian, S.J., Fried, P.J., Schmitt, E.M., Inouye, S.K., Pascual-Leone, A., & Shafi, M.M. (In review). A structured ICA-based process for removing auditory-evoked potentials.
2. Pabst, A., Comstock, D.C., Mede, B., Proksch, S., Ross, J.M., & Balasubramaniam, R. (In review). A systematic review and meta-analysis of the efficacy of intermittent theta burst stimulation (iTBS) on cognitive enhancement.

3. Comstock, D., Ross, J., & Balasubramaniam, R. (2021). Modality-specific frequency band activity during neural entrainment to auditory and visual rhythms. *European Journal of Neuroscience*, 54(2), 4649-4669. doi: 10.1111/ejn.15314
4. Ross, J.M., Comstock, D., Iversen, J.R., Makeig, S., & Balasubramaniam, R. (In revision). Cortical mu rhythms during action and passive music listening.
5. Ross, J.M.\*, Santarnecchi, E.\*, Lian, S.L., Inouye, S.K., Pascual-Leone, A., & Shafi, M.M. (In prep). Markers of post-surgery delirium in TMS-EEG cortical physiology, and relation to long-term cognitive decline.
6. Ross, J.M.\*, Proksch, S.\*, Iversen, J.R., & Balasubramaniam, R. (In review). Left hemisphere dominance in the dorsal auditory stream for musical beat phase timing perception.
7. Ross, J.M., Iversen, J.R., & Balasubramaniam, R. (In revision). Dorsal premotor contributions to auditory rhythm perception: Causal transcranial magnetic stimulation studies of interval, tempo, and phase. (bioRxiv preprint)
8. Nguyen, H.M., Aravindakshan, A., Ross, J.M., & Disbrow, E.A. (2020). Time course of cognitive training in Parkinson disease. *NeuroRehabilitation*, 46, 311-320. doi: 10.3233/NRE-192940
9. Ross, J.M. (2018). Sound Guides Action and Action Scaffolds Sound Perception. *UC Merced*. ProQuest ID: Ross\_ucmerced\_1660D\_10403. Merritt ID: ark:/13030/m5t201nf. (Doctoral dissertation).
10. Ross, J.M., Iversen, J.R., & Balasubramaniam, R. (2018). The role of posterior parietal cortex in beat-based timing perception: A continuous theta-burst stimulation study. *J. Cogn. Neurosci.*, 30(5), 634-643. doi: 10.1162/jocn\_a\_01237
11. Ross, J.M., Iversen, J.R., & Balasubramaniam, R. (2016). Motor simulation theories of musical beat perception. *Neurocase* 22(6). doi: 10.1080/13554794.2016.1242756
12. Ventura, M.I., Barnes, D.E., Ross, J.M., Lanni, K.E., Sigvardt, K.A., & Disbrow, E.A (2016). A pilot study to evaluate multi-dimensional effects of dance for people with Parkinson's disease. *Contemp. Clin. Trials* 51, 50-55. doi: 10.1016/j.cct.2016.10.001
13. Ross, J.M., Will, O.J., McGann, Z., & Balasubramaniam, R. (2016). Auditory white noise reduces age-related fluctuations in balance. *Neurosci. Lett.* 630, 216-221. doi: 10.1016/j.neulet.2016.07.060
14. Ross, J.M., Warlaumont, A.S., Abney, D.H., Rigoli, L.M., & Balasubramaniam, R. (2015). Influence of musical groove on postural sway. *J. Exp. Psychol.- Hum. Percept. Perform.* 42(3), 308-19. doi: 10.1037/xhp0000198
15. Ross, J.M., & Balasubramaniam, R. (2015). Auditory white noise reduces postural fluctuations even in the absence of vision. *Exp. Brain Res.* 233(8), 2357-63. doi: 10.1007/s00221-015-4304-y
16. Ross, J.M., & Balasubramaniam, R. (2014). Physical and neural entrainment to rhythm: human sensorimotor coordination across tasks and effector systems. *Front. Hum. Neurosci.* 8:576. doi: 10.3389/fnhum.2014.00576
17. Abney, D.H., Warlaumont, A.S., Haussman, A., Ross, J.M., & Wallot, S. (2014). Using non-linear methods to quantify changes in infant limb movements and vocalizations. *Front. Psychol.* 5:771. doi: 10.3389/fpsyg.2014.00771
18. Lanni, K.E., Ross, J.M., Higginson, C.I., Dressler, E.M., Sigvardt, K.A., Zhang, L., Malhado-Chang, N., &

Disbrow, E.A. (2014). Perceived and performance-based executive dysfunction in Parkinson's disease. *J. Clin. Exp. Neuropsychol.* 36(4), 342-255. doi: 10.1080/13803395.2014.892059

### **Book Chapters**

1. Ashburn, S.M., Abugaber, D., Antony, J.W., Bennion, K.A., Bridwell, D., Cardenas-Iniguez, C., Doss, M., Fernández, L., Huijsmans, I., Kristt, L., Lapate, R., Layher, E., Leong, J., Li, Y., Marquez, F., Munoz-Rubke, F., Musz, E., Patterson, T.K., Powers, J.P., Proklova, D., Rapuano, K.M., Robinson, C.S.H., Ross, J.M., Samaha, J., Sazma, M., Stewart, A.X., Stickel, A., Stolk, A., Vilgis, V., Zirnstein, M. (2020). Toward a socially responsible, transparent, and reproducible cognitive neuroscience. In M. Gazzaniga & R. Mangun (Eds.), *The Cognitive Neurosciences VI*. Cambridge, MA: MIT Press.

### **Oral Presentations**

1. Ross, J.M. (2021). Multisensory and sensorimotor neuroscience, and clinical applications. Frontiers of Science Institute, University of Northern Colorado, Greeley, Colorado, USA.
2. Ross, J. M., Iversen, J. R., Makeig, S., & Balasubramaniam, R. (2019). Covert motor activity and auditory rhythm perception. New England Sequencing and Timing (NEST), Storrs, Connecticut.
3. Ross, J., Iversen, J., & Balasubramaniam, R. (2017). The role of dorsal premotor cortex in auditory timing: A continuous theta-burst stimulation study. Meeting of the Society for Music Perception and Cognition, San Diego, California.
4. Balasubramaniam, R., & Ross, J. M. (2016). Human postural entrainment to the auditory environment. The Guy Van Orden UConn Workshop on Cognition and Dynamics, XI, Storrs, Connecticut.
5. Ross, J.M., Warlaumont, A.S., Rigoli, L., & Balasubramaniam, R. (2015). The influence of musical groove on balance control. Meeting of the Society for Music Perception and Cognition, Nashville, Tennessee.
6. Ross, J.M., Warlaumont, A.S., Rigoli, L., & Balasubramaniam, R. (2014). Using auditory noise to reduce postural sway in standing adults. Auditory Perception, Cognition, and Action Meeting, Long Beach, California.

### **Posters**

1. Ross, J.M., Sarkar, M., & Keller, C.J. (2021). Experimental suppression of TMS-EEG sensory potentials requires an optimal combination of techniques due to the multisensory experience of TMS. 4th International Brain Stimulation Conference, Charleston, South Carolina, USA.
2. Sarkar, M., Ross, J.M., & Keller, C.J. (2021). Minimizing discomfort from TMS through experimental optimization of sensory suppression protocols. 4th International Brain Stimulation Conference, Charleston, South Carolina, USA.
3. Buss, S.S., Passera, B., Ross, J., Hagan, B., Press, D., & Shafi, M.M. (2021). TMS-EEG as a measure of cortical hyperexcitability in motor and parietal cortex in Alzheimer's disease: a pilot study. Alzheimer's Association International Conference, Amsterdam, Netherlands and Online.
4. Passera, B., Buss, S.S., Ross, J.M., Hagan, B., Press, D., & Shafi, M.M (2021). TMS-EEG as a measure of cortical hyperexcitability in motor and parietal cortex in Alzheimer's disease: a pilot study. 4th International Brain Stimulation Conference, Charleston, South Carolina, USA.
5. Ross, J., Proksch, S., Iversen, J. R., & Balasubramaniam, R. (2019). Hemispheric differences in the role of the parietal cortex in auditory beat perception. Meeting of the Society for Music Perception and Cognition, New York City, N.Y..
6. Proksch, S., Ross, J. M., & Balasubramaniam, R. (2019). Hemispheric differences in parietal contributions to auditory beat perception. 2019 Spring School Language and Music in Cognition: Integrated Approaches to Cognitive Systems. Cologne, Germany.
7. Ross, J., Iversen, J. R., & Balasubramaniam, R. (2018). Dorsal premotor contributions to auditory timing: Causal

- transcranial magnetic stimulation studies of interval, tempo, and phase. 2018 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2018.
8. Ross, J., Iversen, J., & Balasubramaniam, R. (2017). The role of dorsal premotor cortex in auditory timing: A continuous theta-burst stimulation study. Meeting of the Society for Music Perception and Cognition, San Diego, California.
  9. Ross, J., Iversen, J., & Balasubramaniam, R. (2017). Mapping out cortical contributions to auditory timing: A causal transcranial magnetic stimulation study of interval and beat-based timing perception. 2017 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2017. Online.
  10. Ross, J., Iversen, J., & Balasubramaniam, R. (2017). Dorsal and ventral premotor contributions to auditory timing: A continuous theta-burst stimulation study. International Multisensory Research Forum, Nashville, TN.
  11. Ross, J., Iversen, J., & Balasubramaniam, R. (2017). The role of posterior parietal cortex in beat-based timing perception: a continuous theta-burst stimulation study. Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.
  12. Ross, J., Iversen, J., Makeig, S., & Balasubramaniam, R. (2016). An EEG examination of neural entrainment and action simulation during rhythm perception. 14<sup>th</sup> International Conference for Music Perception and Cognition, San Francisco, CA.
  13. Ross, J.M., Warlaumont, A.S., Rigoli, L., & Balasubramaniam, R. (2015). Influence of high and low groove music on postural sway dynamics. 37<sup>th</sup> Annual Meeting of the Cognitive Science Society, Pasadena, CA.
  14. Ventura, M.I., Ross, J.M., Lanni, K.E., Sigvardt, K.A., & Disbrow, E.A. (2015). Improving cognitive functioning and quality of life through dance for PD: A pilot intervention trial. 19<sup>th</sup> International Congress of Parkinson's Disease and Movement Disorders. San Diego, CA.
  15. Ross, J.M., & Balasubramaniam, R. (2015). Contribution of auditory feedback to postural stability. Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.
  16. Ventura, M.I., Ross, J.M., Lanni, K.E., Sigvardt, K.A., & Disbrow, E.A. (2015). Motor and cognitive benefits of dance for people with Parkinson's disease. Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.
  17. Ross, J.M., Warlaumont, A.S., Rigoli, L., & Balasubramaniam, R. (2014). Influence of high and low groove music on postural sway dynamics. Advanced Training Institute on Non-Linear Methods for Psychological Science, American Psychological Association, University of Cincinnati, Ohio.
  18. Dressler, E.M., Aravindakshan, A., Ross, J., Sigvardt, K., Zhang, L., Malhado-Chang, & Disbrow, E.A. (2013). Impaired motor preparation under conditions of response uncertainty in Parkinson's disease. Program No. 431.05/M18. 2013 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2013.
  19. Lanni, K.E., Ross, J., Higginson, C.I., Dressler, E.M., Sigvardt, K.A., Zhang, L., Malhado-Chang, N., & Disbrow, E.A. (2013). Measuring perceived and performance-based executive dysfunction in Parkinson's disease. Program No. 431.04/M17. 2013 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2013.
  20. Ross, J., Dressler, E., Sigvardt, K.A., Aravindakshan, A., Yund, E.W., Woods, D., & Disbrow, E. (2012). Cognitive neurorehabilitation of movement initiation in Parkinson's disease. Program No. 802.19. 2012 Neuroscience Meeting Planner. New Orleans, LA: Society for Neuroscience, 2012.

### ***Awards and Honors***

|           |   |
|-----------|---|
| 2021      | Advanced Fellowship Program in Mental Illness Research and Treatment, Sierra Pacific Mental Illness Research Education and Clinical Centers (MIRECC), VA Palo Alto Health Care System |
| 2017-2018 | Graduate Dean's Dissertation Year Fellowship, University of California, Merced  |
| 2017      | Scholarship for the 2017 UC Davis ERP Bootcamp, University of California, Davis   |
| 2017      | Fall 2016 and Spring 2017 GRAD-EXCEL Peer Mentorship Program Award, Graduate Division, University of California, Merced   |
| 2015      | Graduate Student Fellowship Award from Mark S. Aldenderfer, Dean of the School of Social Sciences, Humanities, and Arts, University of California, Merced                             |
| 2015      | Graduate Dean's Fellowship from Marjorie Zatz, Vice Provost and Dean of Graduate Education, University of California, Merced  |
| 2015      | University of California, Merced GradSLAM Finalist  |
| 2015      | National Science Foundation Graduate Research Fellowship Program (NSF GRFP) Honorable Mention   |
| 2014      | Graduate Fellowship Incentive Program Award, Graduate Division, University of California, Merced  |
| 2014      | Travel grant from the American Psychological Association for the Advanced Training Institute on Non-Linear Methods for Psychological Science  |
| 2010-2011 | International Honor Society Phi Theta Kappa member  |
| 2009      | Special Thanks for Achieving Results (STAR) award from the United States Geological Survey, Biological Resources Division   |
| 10/09     | Expert of the month, Allexperts.com   |

### **Employment History**

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|--------------|---|
| 4/21-present | Postdoctoral Research Fellow (P.I.: C. Keller), Stanford University School of Medicine, Sierra Pacific Mental Illness Research Education and Clinical Centers (MIRECC), Veterans Affairs Palo Alto Healthcare System                                  |
| 4/21-present | Collaborator Status, Harvard Medical School, Berenson-Allen Center for Noninvasive Brain Stimulation, Beth Israel Deaconess Medical Center, Boston  |
| 12/18-4/21   | Postdoctoral Research Fellow (P.I.: M. Shafi), Harvard Medical School, Berenson-Allen Center for Noninvasive Brain Stimulation, Beth Israel Deaconess Medical Center, Boston  |
| 9/18-11/18   | Associate Specialist, Step I, (P.I.: R. Balasubramaniam), University of California, Merced  |
| 8/17-8/18    | Graduate Dean's Dissertation Year Fellow, University of California, Merced  |
| 6/16-8/17    | Graduate Student Researcher, (P.I.: R. Balasubramaniam), University of California, Merced<br>National Science Foundation: <i>Collaborative Research: Brain Mechanisms of Rhythm Perception: The Impact of the Motor System on Auditory Perception</i> |
| 1/16-6/16    | Teaching Assistant, Animal Cognition (Jeanne Milostan), University of California, Merced  |
| 8/15-12/15   | Teaching Assistant, Service Innovation (Paul Maglio), University of California, Merced  |
| 1/15-6/15    | Graduate Student Researcher, (P.I.: R. Balasubramaniam), University of California, Merced<br>Blum Center for Economic Development: <i>Rhythmic Skills and Reading: An Intervention Study in the San Joaquin Valley</i>                                |
| 8/14-12/14   | Teaching Assistant, Perception and Action (Ramesh Balasubramaniam), University of California, Merced.   |
| 1/14-6/14    | Teaching Assistant, Cognitive Neuroscience (Anne Warlaumont), University of California, Merced.   |
| 8/13-12/13   | Teaching Assistant, Speech Processing (Anne Warlaumont), University of California, Merced.  |
| 3/12-8/13    | Psychology Technician GS-181-5, Department of Veterans Affairs, Northern California Health Care System, Martinez, California  |
| 4/11-8/13    | Research Assistant, Elizabeth Disbrow Laboratory, Center for Neuroscience, University of California, Davis  |
| 8/11-10/12   | Independent Living Facilitator, InAlliance, Sacramento, California  |
| 12/11-5/12   | Science Teacher for Resident Science Program, David Lubin Elementary School, Sacramento, California   |
| 7/10-12/10   | Junior Specialist, Petr Janata Laboratory, Center for Mind and Brain, University of   |

California, Davis  
 1/09-7/10 Research Intern, Petr Janata Laboratory, Center for Mind and Brain, University of California, Davis  
 10/03-10/09 Biological Science Technician GS-5, Davis Field Station (P.I.: Keith Miles), United States Geological Survey, Western Ecological Research Center, University of California, Davis

### ***Special Pedagogical Activities***

06-07/2021 Frontiers of Science Institute, University of Northern Colorado  
 Mentored four advanced high school students through neuroscience related projects  
 04/2016 Motion capture lecture/demonstration for COGS 180: Gesture  
 Vicon Bonita Motion Capture System  
 AMTI Force and Motion platforms (Optima BP400600-2000)  
 12/2015 TMS workshop for BIOE 113: Bioinstrumentation  
 Introduced and trained Bioengineering students on the safe usage of TMS

### ***Certifications***

2008 California Basic Educational Skills Test (CBEST), Permanent passing status

### ***Volunteer Work***

Present Ad Hoc Reviewer: Journal of Cognitive Neuroscience, Gait & Posture, Experimental Brain Research, Human Movement Science, Music Perception, PLOS ONE, Society for Music Perception & Cognition, and the Perception, Action, and Cognition program at NSF  
 10/2015-9/2018 Graduate Student Representative, Advisory Committee for the UC Merced Transportation and Parking Services  
 8/16/16 Experienced Teacher's Assistant Informational Panel, Graduate Student TA Orientation, Center for Engaged Teaching and Learning (CETL), UC Merced  
 5/30/2016 Public outreach, Mercy Hospital 5K Stroke Awareness Run  
 Spoke with participants about brain health and balance, and discussed our research  
 2009-2018 Expert, Entomology Question and Answer Service, Allexperts.com  
 7/2015 Volunteer, 37<sup>th</sup> Annual Meeting of the Cognitive Science Society, Pasadena, CA  
 11/04/2014 Cognitive Science Student Association Meeting, University of California, Merced  
 Assisted undergraduates with graduate school applications  
 9/2014 Volunteer, Days and Nights Festival, The Philip Glass Center for the Arts, Science, and the Environment, Big Sur, California  
 1/25/2014 "Child Triumphs and Troubles: Language and Learning in the Early Years" Professional Development and Research Lab Tours, University of California, Merced  
 2011/2012 Brain Awareness Week (K-6 brain education), Center for Neuroscience, University of California, Davis  
 2004-2008 Founding member of the One World Children's Fund, Davis Branch, Davis, CA

### ***Professional Affiliations***

Cognitive Neuroscience Society, Society for Music Perception & Cognition, Cognitive Science Society, American Psychological Association, Society for Neuroscience

### ***Media and Impact***

"Meta-analysis of neuroimaging during passive music listening: Motor network contributions to timing perception," Timing Research Forum Blog, March 9, 2019.

"To Hear the Beat, Your Brain May Think About Moving to it: A Brain Region Linked to Movement is Integral to Recognizing Rhythms," Science News: Magazine for the Society for Science and the Public, February 16, 2018.

Elsevier AudioSlides: Ross, J.M., Will, O.J., McGann, Z., & Balasubramaniam, R. (2016). Auditory white noise reduces age-related fluctuations in balance. *Neurosci. Lett.* 630, 216-221.