

Joseph LaCoste Sanguinetti, Ph.D.

OFFICE ADDRESS

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University of New Mexico
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EDUCATION

- 2011 – 2014 Ph.D., Cognition and Neural Systems, Psychology
University of Arizona
Advisors: Mary Peterson, Ph.D.; John J. B. Allen, Ph.D.
- 2009 – 2011 M.A., Cognition and Neural Systems, Psychology
University of Arizona
Advisors: Mary Peterson, Ph.D.; John J. B. Allen, Ph.D.
- 2003 – 2007 B.A., Psychology
B.A., Philosophy and Religion
University of North Carolina Wilmington
Magna Cum Laude
Honors Thesis Advisor: Julian Keith, Ph.D.

POST-DOCTORAL TRAINING

- 2016 – Present Postdoctoral Fellow
Army Research Laboratory
PI: Alfred Yu
- 2014 – 2016 Postdoctoral Fellow
University of Arizona
PI: John J. B. Allen

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ACADEMIC APPOINTMENTS

2016 – Present Research Assistant Professor
University of New Mexico

2014 – Present Associate Director
Center for Consciousness Studies
University of Arizona

EMPLOYMENT

2019 Research Scientist
Center for Consciousness Studies
University of Arizona

2008 – 2010 Neurofeedback Specialist
Allied Psychophysiology
Wilmington, North Carolina

2005 – 2007 Applications Specialist
Cortech Solutions, Inc.
Wilmington, North Carolina

PROFESSIONAL SOCIETIES

Mind and Life, 2016 to present
International Society for Therapeutic Ultrasound, 2018
The Society for Neuroscience, 2007 to present
Vision Sciences Society, 2009 to 2015
Society for Psychological Research, 2009 to 2015

PUBLICATIONS

UNDER REVIEW/ IN PREPARATION

Reznik S., **Sanguinetti**, J. L., Hameroff, S., Allen J.J.B., Focused Ultrasound as an Intervention for Depression: A Five-Day, Randomized, Placebo-Controlled Trial. *Submitted. Journal of Affective Disorders.*

Sanguinetti, J. L., Smith, E., Diekman, L., Tyler, W. J., Allen, J. J. B., & Hameroff, S. Transcranial Focused Ultrasound Modulates Mood and Alters Functional Connectivity. *In Preparation.*

Sanguinetti, J. L., Yu A. B., Badran, B., Clark V. Enhanced Target Detection with Photobiomodulation. *In Preparation.*

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PUBLISHED

- Gibson, B., **Sanguinetti, J.L.**, Mullins, T., Salazar, S., Buchman, L., Cutter, C., ... & Yu, A. (2019). Excitability changes induced in the motor cortex by transcranial ultrasound stimulation. *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*, 12(2), 469-470.
- Robinson, C., Bryant, N., Maxwell, J., Jones, A., Robert, B.,....**Sanguinetti, J.L.**, Ketz, N.A., Pilly, P.K., & Clark, V.P., (2018). The benefits of closed-loop transcranial alternating current stimulation on subjective sleep quality. *Brain sciences*, 8(12), 204.
- Tyler, W. J., **Sanguinetti, J. L.**, Fini, M., & Hool, N. (2017). Non-invasive neural stimulation. In *SPIE Defense+ Security (pp. 101941L-101941L)*. International Society for Optics and Photonics.
- Sanguinetti, J. L.**, & Peterson, M. A. (2016) A Behavioral Task Sets an Upper Bound on the Time Required to Access Object Memories Before Object Segregation. *Journal of Vision*. 16(15), 26-26.
- Sanguinetti, J. L.**, Trujillo, L. T., Schnyer, D. M., Allen J. B., & Peterson, M. A. (2016). Increased alpha indexes inhibitory competition across a border. *Vision Research*. 126, 120-130.
- Goldstein, M. R., Peterson, M. J., **Sanguinetti, J. L.**, Tononi, G., & Ferrarelli, F. (2015). Topographic deficits in alpha-range resting EEG activity and steady state visual evoked responses in schizophrenia. *Schizophrenia Research*, 168(1), 145-152.
- Sanguinetti, J. L.**, Allen, J. J. B., & Peterson, M. A. (2014). The ground side of an object; perceived as shapeless yet processed for semantics. *Psychological Science*. 25.1 256-264.
- Cacciamani, L., Mojica, A. J., **Sanguinetti, J. L.**, & Peterson, M. A. (2014). Semantic access occurs outside of awareness for the ground side of a figure. *Attention, Perception, & Psychophysics*, 76(8), 2531-2547.
- Cavanagh, J. F., **Sanguinetti, J. L.**, Allen, J. J. B., Sherman, S. J., & Frank, M. J. (2014). The subthalamic nucleus contributes to post error slowing. *Journal of Cognitive Neuroscience*, 26. 2637–2644.
- Peterson, M. A., Cacciamani, L., Mojica, D., & **Sanguinetti, J. L.** (2012). Meaning can be accessed for the ground region of a figure, *Gestalt Theory*, 34(3/4), 297-314.

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BOOK CHAPTERS

Sanguinetti, J. L., Smith, E., Allen, J. J. B., & Hameroff, S. (2014). Human brain stimulation with transcranial ultrasound (TUS): Potential applications for mental health. In *Bioelectromagnetic Medicine*. (pp. 355-361), New York, NY: Taylor & Francis.

INVITED TALKS

Sanguinetti, J. L. (2019). A Technoboost for Meditation. TEDx BigSky. Big Sky, Montana.

Sanguinetti, J.L. (2019). Sonication Enhanced Mindful Awareness (SEMA). Awakened Futures Summit. San Francisco, California.

Sanguinetti, J. L. (2018). *Enhancing positive mood states and mindfulness with ultrasonic neuromodulation*. Departmental Symposium at University of Würzburg, Würzburg, Germany.

Sanguinetti, J. L. (2018). *Brain stimulation and the future of meditation*. Presentation at Consciousness Hacking, San Francisco, California.

Sanguinetti, J. L. (2018) *Accelerated mindfulness with ultrasonic neuromodulation*. Presentation at The Science of Consciousness Conference, Tucson, Arizona.

Sanguinetti, J.L., (2018). *Noninvasive neuromodulation*. Albuquerque Consciousness Hacking Society, Albuquerque, New Mexico.

Sanguinetti, J. L. (2018). *Enhancing well-being and mindfulness with ultrasonic neuromodulation*. Grand rounds presentation at University of New Mexico Medical Hospital. Albuquerque, New Mexico.

Sanguinetti, J. L., Martin, J. A. (June, 2017). *Brain stimulation and transformative technology*. Workshop at The Science of Consciousness, San Diego, California.

Sanguinetti, J. L. (2017). *Effects of transcranial ultrasound on mood and potential clinical applications*. New Mexico Clinical Neurostimulation Meeting, Albuquerque, New Mexico.

Sanguinetti, J. L. (2017). *Studies of transcranial ultrasound on cognition, mood, and functional connectivity*. BrainSTIM, Vancouver, Canada.

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- Sanguinetti, J. L. (2016). *What 1 million vibrations per second can do for you: Mood alteration and ultrasound*. Transformative Technology Conference, Palo Alto, California.
- Sanguinetti, J. L., Goldstein, M., Dieckman, L., Tyler, W. J., Allen J. J. B. (2016). *Noninvasive neuromodulation with transcranial ultrasound*. Invited Symposium at Society for Psychophysiological Research Annual Meeting, Minneapolis, Minnesota.
- Sanguinetti, J. L. (June, 2015). *Phenomenological reports after transcranial ultrasound: Discovery of new phenomenon for controlled experiments*. Plenary at Towards a Science of Consciousness, Helsinki, Finland.
- Sanguinetti, J. L. (June, 2015). *Transcranial ultrasound modulates mood in human volunteers*. Presentation at WAAG Society Institute for Art, Science and Technology, Amsterdam, The Netherlands.
- Sanguinetti, J. L. (December, 2014). *The ground side of an object: Perceived as shapeless yet processed for semantics*. University of Arizona Cognitive Science Colloquium, Tucson, Arizona.
- Sanguinetti, J. L. (April, 2014). *The influence of transcranial ultrasound on mood and arousal in healthy volunteers*. Workshop at Towards a Science of Consciousness Conference, Tucson, Arizona.
- Sanguinetti, J. L., Smith, E., William, J. T., Hameroff S., & Allen, J. J. B. (April, 2014). *Transcranial ultrasound (TUS) brain stimulation in humans: Effects on mood/mental states in three studies*. Towards a Science of Consciousness, Tucson, Arizona.
- Sanguinetti, J. L. (December, 2013). *Evidence for proactive conflict in the subthalamic nucleus with intracranial EEG*. Third Annual UA/ASU Cognitive Science Conclave, Phoenix, Arizona.
- Sanguinetti, J. L., & Peterson M. A. (May, 2013). *Fast access to category level representations can be dissociated from perception*. Vision Sciences Society, Naples, Florida.
- Sanguinetti, J. L. (September, 2009). *Neuroimaging and meditation: What fMRI has to say about meditation?* Arizona Meditation Research Interest Group (AMRIG), University of Arizona, Tucson, Arizona.

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RESEARCH AWARDS

- 2017 Enhancement of mindfulness meditation with focused ultrasound. Funded by the Stiller Family Foundation (co-PI; PI Vince Clark; direct costs \$16,567).
- 2013 – 2014 A randomized clinical trial of transcranial ultrasound for mood enhancement. Funded by Thync/Neurotrek (co-PI; PI John J. B. Allen; direct costs \$88,998).

GRANT PROPOSALS PENDING REVIEW OR FUNDING

- 2017 Transcranial Ultrasound to Target Default Mode Network Connectivity in the Treatment of Mood Disorders. (NIH R62/R33, co-PI, PI: John JB Allen \$3,439,909)
- 2012 The Role of the Subthalamic Nucleus in Limbic Circuitry: Affective Perception or Cognitive Control? (McKnight Foundation, PI: John JB Allen, PI: Scott Sherman \$325,000)

CHAired CONFERENCE SYMPOSIA

- June 2017. Noninvasive Brain Stimulation (Chair). Towards a Science of Consciousness. San Diego, CA.
- April 2014. Disorders of Consciousness (Chair). Towards a Science of Consciousness. Tucson, AZ.
- April 2014. Brain Networks and Consciousness (Chair). Towards a Science of Consciousness. Tucson, AZ.

HONORS AND AWARDS

- 2014 College of Science Graduate Student Award for Scholarship
- 2012 Galileo Circle Scholar, College of Science, University of Arizona
- 2012 Winner; Graduate and Professional Student Council Student Showcase, Biological Sciences
- 2011 Graduate Interdisciplinary Research Award, Cognitive Science
- 2011 Graduate and Professional Council Travel Grant
- 2010 University of Arizona Student-Teacher Interaction Grant
- 2010 Graduate and Student Council Travel Grant
- 2009 University of Arizona Graduate School Fellowship
- 2005 Psi Chi National Psychology Honors Society
- 2005 University of North Carolina-Wilmington Chancellors Travel Award
- 2003 First Prize; Western Carolina University Student Publication Contest

PUBLISHED CONFERENCE ABSTRACTS

- Ayars, A., Peterson, M., & Sanguinetti, J. (2015). Semantic unmasking effect is not explained by triggering of memory. *Journal of Vision*, 15(12), 1090-1090.

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- Sanguinetti, J. L., Smith, E. E., Tyler, W. J., Hameroff, S., & Allen, J. J. (2014). Transcranial ultrasound (TUS) Brain stimulation affects mood in healthy human volunteers with a prototype ultrasound device. *Psychophysiology* 51, S42-S42.
- Sanguinetti, J. L., Trujillo, L. T., Schnyer, D. M., Allen, J. J., & Peterson, M. A. (2014). Increased alpha band activity indexes inhibitory competition across a border during figure assignment. *Journal of Vision*, 14(10), 49-49.
- Sanguinetti, J. L., Smith, E. E., Dieckman, L., Vanuk, J., Hameroff, S., & Allen, J. J. B. (2013). Noninvasive transcranial ultrasound (TUS) for brain stimulation: Effects on mood in a pilot study. *Psychophysiology*, 50, S36.
- Cacciamani, L., Mojica, A. J., Sanguinetti, J. L., & Peterson, M. A. (2013). Accessing meaning for the groundside of a figure: How long does it last? *Journal of Vision*, 13(9), 71-71.
- Sanguinetti, J. L., & Peterson, M. A. (2013). Unmasking the mask: Semantic similarity produces disinhibition in a masked priming paradigm. *Journal of Vision*, 13(9), 47-47.
- Cacciamani, L., Mojica, A. J., Sanguinetti, J. L., & Peterson, M. A. (2012). Meaning can be accessed for the groundside of a figure. *Journal of Vision*, 12(9), 305-305.
- Sanguinetti, J. L., Cavanagh, J., Allen, J. J. B., & Sherman, S. (2011). Dissociating proactive and reactive conflict in the subthalamic nucleus. *Psychophysiology*, 44, 166.
- Sanguinetti, J. L., Peterson, M. A., Ash, K. M., & Allen, J. J. B. (2010). Electrophysiological evidence for inhibitory cross-edge competition during figure-ground perception. *Psychophysiology*, 47, S77.

CONFERENCE/MEETING PRESENTATIONS NOT APPEARING AS PUBLISHED ABSTRACTS

- Allen, J. J. B., Sanguinetti, J. L., Cooley, S., & Hameroff, S. (June, 2015). *The promise of altering consciousness and treating brain disorders with transcranial ultrasound (TUS)*. Invited Keynote at Towards a Science of Consciousness, Helsinki, Finland.
- Hameroff, S., Cooley, S., Sanguinetti, J. L., & Allen, J. J. B. (June, 2015). *'Tuning the brain' – Can transcranial ultrasound ('TUS') treat mental and cognitive disorders?* Invited presentation for the WAAG Society Institute for Art, Science and Technology, Amsterdam, The Netherlands.

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Hameroff, S., Sanguinetti, J. L., Cooley, S., & Allen, J. J. B. (June, 2015). *Tuning your mood with transcranial ultrasound*. Presentation at Towards a Science of Consciousness, Helsinki, Finland.

Michael, G., Sanguinetti, J. L., Tyler, W. J., Hameroff, S., & Allen, J. J. B. (April, 2014). *Transcranial ultrasound (TUS) stimulation at the scalp vertex increases self-ratings on a buddhist-based nonattachment scale*. Presentation at Towards a Science of Consciousness, Tucson, Arizona.

Sanguinetti, J. L., Allen J. J. B., & Hameroff, S. (March, 2013). *Transcranial ultrasound brain stimulation increases positive affect in healthy participants*. Presentation at the University of Arizona Frontiers in Biomedical Research Poster Forum, Tucson, Arizona.

Sanguinetti, J. L., Heshmati, S., Allen J. J. B., & Peterson, M. A. (September, 2012). *Masked repetition priming with event-related potentials reveals that access to semantics can be dissociated from visual perception*. Presentation at Annual Meeting for the Society for Neuroscience (285.19/VV20), New Orleans, Louisiana.

Peterson, M. A., Sanguinetti, J. L., & Allen, J. J. B. (August, 2011). *ERP evidence that semantic access occurs for objects that are suggested but not perceived on the ground side of a figure*. Presentation at European Conference on Visual Perception, Paris, France.

Sanguinetti, J. L., Allen, J. J. B., & Peterson, M. A. (September, 2010). *A repetition paradigm with figure-ground stimuli reveals that both semantic and shape representations can be accessed outside of awareness*. Poster at Society for Neuroscience Annual Conference, San Diego, California.

Sanguinetti, J. L., Ash, K., Peterson, M. A., & Allen, J. J. B. (December, 2010). *Priming for conscious and unconscious shapes reveals differential processes during figure-ground organization*. Poster at UA/ASU Cognitive Science Conclave, Tucson, Arizona.

Keith, J. R., Sanguinetti, J. L., Byrd, B. D., Psilos, K. E., Flynn, J. R., & Smith, L. (September, 2008). *Recognition memory: Event related potentials with source localization*. Poster at Society for Neuroscience Annual Conference, Washington, D.C.

Sanguinetti, J.L., & Keith, J. R. (May, 2007). *Brain electrical activity during recognition memory: an event-related potentials study*. Poster at Undergraduate Research Conference of the Colonial Academic Alliance, Wilmington, North Carolina.

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Sanguinetti, J. L., & Keith, J. R. (May, 2007). *Brain electrical activity for recognition memory*. Poster at Undergraduate Research Conference of the Colonial Academic Alliance. Harrisonburg, Virginia.

Saling, M., Keith, J. R., Priester, C., Sanguinetti, J. L. (September, 2006). *The effects of fluoxetine and environmental enrichment on recovery of function after dentate gyrus lesions*. Poster at Society for Neuroscience Annual Conference, Atlanta, Georgia.

TEACHING EXPERIENCE

- 2018 *Noninvasive Neuromodulation*. Guest lecture for Neurobiology (PSY599), University of New Mexico.
- 2015 *Non-invasive Brain Stimulation*. Guest lecture for Cognitive Neuroscience (PSY329), University of Arizona.
- 2014 *Non-invasive Brain Stimulation*. Guest lecture for Cognitive Neuroscience (PSY329), University of Arizona.
- 2014 *Neuroscience of Vision*. Guest lecture for Cognitive Neuroscience (PSY329), University of Arizona.
- 2013 **Instructor**, Research Methods (PSY297), University of Arizona.
- 2013 **Co-instructor**, Biopsychology (INDV360), University of Arizona.
- 2012 Teaching Assistant, Introduction to Psychology (INDV150), University of Arizona.
- 2011 **Instructor**, Research Methods (PSY297, Online), University of Arizona.
- 2010 Teaching Assistant, Sensation and Perception (PSY356), University of Arizona.
- 2010 Teaching Assistant, Cognitive Psychology (PSY329, Online), University of Arizona.
- 2010 *Science of Psychology*. Guest lecture for Sensation and Perception (PSY356), University of Arizona.
- 2009 Teaching Assistant, Introduction to Psychology (INDV150), University of Arizona.

RESEARCH EXPERIENCE

- 2014 Graduate Research Assistant
University of Arizona
Department of Psychology & Anesthesiology
Supervisors: John J. B. Allen, Ph.D., Stuart Hameroff M.D.
- 2013 Research Associate
The Center for Consciousness Studies
University of Arizona
- 2009 – 2011 Graduate Research Assistant

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University of Arizona
Department of Psychology
Supervisor: Mary Peterson, Ph.D.

2008 – 2010 Research Advisor/Collaborator
Brain-Computer Interface Project
Department of Computer Science
University of North Carolina Wilmington

2007 – 2009 Assistant Research Scientist
Regenerative Neuroscience Laboratory
Department of Psychology
University of North Carolina Wilmington
Supervisor: Julian Keith, Ph.D.

2006 – 2007 Research Assistant
Regenerative Neuroscience Laboratory
University of North Carolina Wilmington,
Supervisor: Julian Keith, Ph.D.

INTERNSHIP

2005 – 2006 Internship
Easter-Seals/United Cerebral Palsy
Wilmington, North Carolina

PROFESSIONAL ORGANIZATIONS

The Society for Neuroscience, 2007 to present
Vision Sciences Society, 2009 to present
Society for Psychological Research, 2009 to present

COMMUNITY SERVICE

2011-2013 Representative
Graduate and Professional Student Council
School of Science
University of Arizona

2011-2013 Co-Founder/Co-president
SAGE, Students against Guns in Education

SELECTED EXAMPLES OF POPULAR PRESS COVERAGE

PC Magazine. Can Brain Machine Interfaces Mend Your Moods?

Consciousness Central. Episode TSC2015. Video Interview.

Wired. Ultrasound Waves Applied to the Brain Can Alter Patients' Moods

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PBS NewsHour. Your Brain Sees Things that You Don't

Huffington Post. Your Brain Processes Information Even When You're Not Conscious of It

UA News. Your Brain Sees Things that You Don't

Science Daily. Your Brain Sees Things that You Don't

Kurzweil.net. Does Your Brain See Things You Don't?

El Nacional. Tu Cerebro Puede Ver Cosas que Tus Ojos No Ven

Le HuffPost. Perception du Cerveau: Il Voit des Choses, Mais Pas Nous

Science@ORF. Gehirn: Bedeutung ohne Bewusstsein

Pnahoboctn. Мозг "видит" знакомые объекты, даже когда человек этого не осознает

Vcharkarn.com มอง"เห็น"แม้จิต"ไม่ได้"เห็น" คลิกที่นี่

Reddit. *The New Reddit Journal of Science*. Your Brain Sees Things that You Don't. 2,591 upvotes.

Science Daily. 'Good Vibration:' Brain Ultrasound Improves Mood

UA News. Mediating Mood through Brain Ultrasound

Science Daily. Good Vibrations: Mediating Mood Through Brain Ultrasound

The Indian Express. Brain Ultrasound May Boost Mood: Study