

JING ZHANG

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Education and Academic Appointment

Massachusetts General Hospital/ Harvard Medical School Research Fellow	Boston, MA 07/2023 – present
University of California, Irvine Ph.D. in Cognitive Science M.S. in Cognitive Neuroscience	Irvine, CA 07/2021 – 06/2023 09/2018 – 06/2021
Furman University B.S. in Psychology; Minor in Gender Studies	Greenville, SC 09/2012 – 05/2016

Skills

- Programming Languages: Matlab, Python, R Studio, and SPSS
- Brain Imaging Skills: fMRI data collection and processing, related software packages including SPM, CONN, and FSL. EEG/PSG techniques and signal processing, sleep stage scoring, related software packages including BrainVision Analyzer, and EEGLAB. Simultaneous EEG/fMRI methods.
- Statistics: General linear models, time-series analysis, probabilistic classification, basic machine-learning algorithms, and data visualization
- Languages: Chinese, English
- Other: E-Prime, operant conditioning, rodent handling, and rodent surgery.

Honors and Awards

• Sleep Research Society Trainee Merit Based Award	2021 2022
• DTEI Summer Fellowship	2021
• 19th Annual John I. (Jack) Yellott Scholar Award	2021
• Associate Dean Fellowship -- Winter 2021& Spring 2023	2021 2023
• UCI MIND WAM Women's Initiative Pilot Grant (PI: Sara Mednick)	2020
• Furman University Academic Award for Excellence - Burt's Scholar in Psychology	2016
• Furman University Academic Award for Excellence in Gender Studies	2016
• Furman Advantage Fellowship	2015
• NIH INBRE Undergraduate Research Fellowship	2014

Research Experiences

Research Fellow

Massachusetts General Hospital/ Harvard Medical School

PI: Dara Manoach

07/2023 – present

- Sleep-dependent memory processing in schizophrenia
Funding: National Institute of Mental Health R01MH092638-04
Role: Work closely with the PI and collaborators to design studies, acquire data, interpret findings, write papers, develop, improve, and apply data analytic techniques.

Graduate Student Researcher

University of California, Irvine

PI: Sara Mednick

09/2018 – 06/2023

- An investigation of how sleep-dependent memory is modulated by menstrual phase using simultaneous EEG-fMRI
Funding: UCI MIND WAM Women's Initiative Pilot Grant
Role: Developed idea, prepared grant proposal, developed cognitive tasks, set up the simultaneous EEG-fMRI equipment, mentored undergraduates, collected and analyzed data, future manuscript preparation
- The impact of sex hormones on sleep-dependent memory in young and midlife women and men
Funding: NIH R01 AG061355
Role: Programmed cognitive tasks including Emotional Picture Task and Paired-Associates Task, subject recruitment, data collection and analysis, poster and talk presentations, and manuscript preparation
- The roles of central and autonomic activity during sleep in declarative and working memory
Role: data analysis and manuscript preparation
- The effect of zolpidem on memory consolidation and sleep features over a night of sleep
Funding: R01 AG046646
Role: data analysis, poster presentation, manuscript preparation

Clinical Study Coordinator

University of Maryland, Baltimore

PI: David Seminowicz

07/2016 -07/2018

- Electrophysiological markers for prolonged pain sensitivity
Role: set up equipment for simultaneous EEG-fMRI system, collected and analyzed data, assisted manuscript preparation
- MRI Outcomes of Mindfulness Meditation for Migraine
Funding: NCCAM 1R01AT007176-01A1
Role: coordinated the study team, ensured data compliance, prepared documents for quality checks and external reviews, collected and analyzed data, assisted manuscript preparation

Research Assistant

Furman University

PI: Erin Wamsley

05/2015-07/2016

- Electrophysiological markers of successful dream recall
Funding: NIMH 1R21MH098171, Furman Advantage
Role: developed ideas, composed fellowship application, recruited participants, collected and analyzed sleep EEG data, prepared manuscript

Publications

- Shuster, A.E., Simon, K.C., **Zhang, J.**, ..., Mednick, S.C. (2023). Good Sleep is a Mood Buffer for Young Women During Menses. *SLEEP*. <https://doi.org/10.1093/sleep/zsad072>
- Chen, P. †, **Zhang, J.** †, Thayer, J., Mednick, S.C. (2022). Understanding the roles of central and autonomic activity during sleep in the improvement of working memory and episodic memory. *The Proceedings of the National Academy of Science*. <https://doi.org/10.1073/pnas.2123417119>
- Simon, K., Clemenson, G., **Zhang, J.**, ..., Mednick, S.C. (2022). Sleep facilitates spatial memory but not navigation using the Minecraft Memory and Navigation Task. *The Proceedings of the National Academy of Science*. <https://doi.org/10.1073/pnas.220239411>
- McDevitt, E. A. †, **Zhang, J.** †, MacKenzie, K. J., Fiser, J., Mednick, S.C. (2022). The effect of interference, offline sleep, and wake on spatial statistical learning. *Neurobiology of Learning and Memory*. <https://doi.org/10.1016/j.nlm.2022.107650>
- Zhang, J.**, Whitehurst, L., M., Mednick, S.C. (2022). The role of sleep for episodic memory consolidation: stabilizing or rescuing? *Neurobiology of Learning and Memory*. <https://doi.org/10.1016/j.nlm.2022.107621>

- Alzueta, E., de Zambotti, M., Javitz, H., ...**Zhang, J.**, Shuster, A., Mednick, S.C., Baker, F. (2022). Tracking sleep, temperature, heart rate, and daily symptoms across the menstrual cycle with the Oura ring in healthy women. *International Journal of Women's Health*. <https://doi.org/10.2147/IJWH.S341917>
- Simon, K. C., Whitehurst, L. N., **Zhang, J.**, & Mednick, S. C. (2021). Zolpidem maintains memories for negative emotions across a night of sleep. *Affective Science*. <https://doi.org/10.1007/s42761-021-00079-1>
- Furman AJ., Prokhorenko M., Keaser ML., **Zhang, J.**, Chen, S., Mazaheri, A., Seminowicz, DA. (2020). Sensorimotor peak alpha frequency is a reliable biomarker of prolonged pain sensitivity. *Cerebral Cortex*. doi: 10.1093/cercor/bhaa124
- Zhang, J.** †, Yetton, B. †, Whitehurst, L., Naji, M., Mednick, S.C. (2020). The effect of Zolpidem on memory consolidation and sleep features over a night of sleep. *SLEEP*. doi: 10.1093/sleep/zsaa084
- Seminowicz, DA. Burrowes, S., Kearson, A., **Zhang, J.**, Krimmel, S., Samawi, L., Furman, A., Keaser, M., Gould, N., Magyari, T., White, L., Goloubeva, O., Goyal, M., Peterlin, L., Haythornthwaite, J., (2020). Enhanced mindfulness-based stress reduction (MBSR+) in episodic migraine: a randomized clinical trial with MRI outcomes. *PAIN*. doi:10.1097/j.pain.0000000000001860
- Zhang, J.**, Wamsley, E.J. (2019). EEG predictors of dreaming outside of REM sleep. *Psychophysiology*. <https://doi.org/10.1111/psyp.13368>

Talks and Posters

- Zhang, J.**, Simon, K. ..., Mednick, S.C. (2022). Menstrual cycle-related changes in sleep-dependent emotional memory consolidation. Talk and poster presented at SLEEP 2022. Charlotte, NC.
- Chen, P., **Zhang, J.**, Tambini, A., Mednick, S.C. (2022). How do slow oscillation and vagal activity support working memory? A Simultaneous EEG/fMRI Study. Poster presented at SLEEP 2022. Charlotte, NC.
- Delano, N., Pena, A., ..., **Zhang, J.** (2021) The Dream Affect: The Role of Dreaming in Emotional Processing. Poster presented at Society of Neuroscience Virtual Conference.
- Zhang, J.** & Mednick, S.C. (2021). A look at sex differences on sleep's impact on working memory improvement. Poster presented at SLEEP Virtual Conference.
- Shuster, A., **Zhang, J.** ... Mednick, S.C. (2021). Sleep and mood across the menstrual cycle in young women. Poster presented at SLEEP Virtual Conference.
- Zhang, J.** & Mednick, S. (2020). The Effect of Zolpidem on Sleep-dependent Declarative Memory Consolidation. Poster presented at SLEEP Virtual Conference.
- Simon, K., Whitehurst, L., **Zhang, J.**, Mednick, S.C. (2020). The Effect of Zolpidem on Sleep-dependent Emotional Memory Consolidation. Poster presented at SLEEP Virtual Conference.
- Zhang, J.**, Yetton, B., Whitehurst, L., Naji, M., Mednick, S.C. (2019). The Effect of Zolpidem on memory consolidation and sleep features over a night of sleep. Poster presented at World Sleep Annual Meeting, Vancouver, Canada.
- Zhang, J.**, Kearson, A., Burrowes, S..., Seminowicz, D.A. (2018). Effects of sleep quality, pain catastrophizing, anxiety and depression on pain-related activation for migraine patients and healthy controls. Poster presented at Society for Neuroscience Annual Meeting, San Diego, CA.
- Furman, AJ., Krimmel, S., **Zhang, J.**, Keaser, R., Gullapalli, R., Seminowicz, D.A. (2018). The relationship of Sensorimotor Peak Alpha Frequency to regions across the brain is modulated by pain. Poster presented at Society for Neuroscience Annual Meeting, San Diego, CA.
- Black, J., **Zhang, J.**, Seminowicz, D., & Quilton, R. (2017). Painful thermal stimulation to the face and arm produces different patterns of brain activity in migraine patients and controls. Poster presented at American Pain Society Annual Meeting, Pittsburgh, PA.
- Zhang, J.**, Wamsley E.J. (2017). Electrophysiological markers of successful dream recall. Poster presented at SLEEP, Boston, MA. <https://doi.org/10.1093/sleep/zsx050.228>

Summer, T., **Zhang, J.**, Humiston, G., Piepert, A., & Wamsley, E. (2015). The effect of cognitive load on memory consolidation during a short period of waking rest. Poster presented at Society for Neuroscience Annual Conference, Chicago, IL.

Zhang, J., Laurenzo, W., Hayden, J., & Rice, O., (2015). Will repeated exposure to toluene in adolescent rats increase the possibility of intravenous cocaine abuse in adulthood? Poster presented at Furman Engaged and Furman-Davison Summer Psychology Research Conference, Greenville, SC.

Teaching and Mentoring

Instructor

Department of Cognitive Sciences, University of California, Irvine

- MATLAB programming

Summer 2022

Guest Lecturer

Department of Cognitive Sciences, University of California, Irvine

- Sleep and Consciousness: Dream (11/15/2021)
Sleep in Older Adults and Women during Menstrual Cycles and Menopause (11/1/2021)

Teaching Assistant

Department of Cognitive Sciences, University of California, Irvine

09/2018 – present

- Probability and Statistics in Psychology (Spring 2022) – facilitated discussion session, guided students' through R programming
- Brain Disorders (Spring 2020, Spring 2021) – facilitated online discussions; answered students' questions via online discussion board and emails
- Clinical Psychology (Winter 2020) – facilitated in-class discussions, developed grading rubrics and graded papers and short essays.
- Experimental Psychology (Fall 2019, Fall 2020)– led weekly lab sections for a group of 25 undergraduate students; helped students develop research ideas, conduct experiments, analyze data using statistical program JASP and write research reports; graded weekly lab reports; held office hours and individual meetings.
- Introduction to Psychology (Fall 2018, Winter 2018, Summer, 2019) – led weekly discussion sections for a group of 50 undergraduate students; prepared presentations and in-class activities aimed to understand concepts and terms related to class; held office hours and review sections to prepare students for exams.

Mentor

UROB Research Discovery Program, University of California, Irvine

02/2022 – present

- Guide and support four undergraduate student mentees in participating in research at UCI.
- Lead workshops, group meetings and individual meetings to help mentees get involved in research, connect with faculty, and develop professional skills.

Graduate InterConnect Program, University of California, Irvine

03/2021 – present

- Provide mentorship and assistance for new international graduate students with their transition to the campus and the local communities.
- Meet with mentees to discuss professional development pathways and resources specific to their Ph.D. or Master's track.

Furman Connect Program, Furman University

03/2021 – present

- Share expertise and experience with current Furman students through informational interviews, resume and cover letter reviews, and networking
- Panelist in workshops on professional development for undergraduate students

Certification

- Mentoring Excellence Certificate 05/2021
- The CIRTl Associate level certificate 12/2020
- Certificate in Teaching Excellence 12/2020
- Certificate in Course Design Excellence 12/2020

Community Outreach

The CNLM Ambassador Program, Irvine CA 12/2021 - present

Volunteer

- Design, execute and evaluate meaningful activities focused on science communication on campus and in the community

The Loh Down on Science, Irvine, CA

Writer

09/2020 – 03/2022

- Write and edit scripts for the Loh Down on Science, a radio show focused on science communication.

CareChoices- Hospice and Palliative Care, Irvine, CA

Volunteer

12/2019 – 12/2020

- Provided companionship to hospice patient once or twice a week in homes or assisted living facilities.

Ad Hoc Reviewing

- SLEEP
- Scientific Reports
- Neurobiology of Learning and Memory