

JING ZHANG

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Education

University of California, Irvine

PhD in Cognitive Neuroscience

Irvine, CA

2018 - present

Furman University

B.S. in Psychology; Minor in Gender Studies

Greenville, SC

2012 – 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 2022 2021
- DTEI Summer Fellowship 2021
- Associate Dean Fellowship -- Winter 2021 2021
- 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

Graduate Student

University of California, Irvine

PI: Sara Mednick

09/2018 to present

- 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

Chen, P. †, **Zhang, J.**†, Thayer, J., Mednick, S.C. (in revision). Understanding the roles of central and autonomic activity during sleep in the improvement of working memory and episodic memory. PNAS.

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., & Quiton, 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/sleepj/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

- UROF 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 CIRTLL 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 09/2020 – 03/2022
Writer
- Write and edit scripts for the Loh Down on Science, a radio show focused on science communication.
- CareChoices- Hospice and Palliative Care, Irvine, CA 12/2019 – 12/2020
Volunteer
- Provided companionship to hospice patient once or twice a week in homes or assisted living facilities.

Ad Hoc Reviewing

- SLEEP
- Neurobiology of Learning and Memory