

Pin-Chun Chen, PhD

pcchen.sleep@gmail.com
<https://pinchunc.github.io>

Education

09/2017-06/2022	PhD, Cognitive Sciences , University of California, Irvine (UCI), CA, USA Thesis: Heart-brain Interaction during Sleep Drives Sleep-dependent Memory Gains
09/2018-06/2020	MSc, Statistics , University of California, Irvine (UCI), CA, USA
09/2014-06/2017	BS, Psychology , National Chengchi University, Taipei, Taiwan
09/2013-06/2017	BEd, Education , National Chengchi University, Taipei, Taiwan

Research Experience

10/2023-	Postdoctoral Fellow , Staresina Lab, Department of Experimental Psychology, University of Oxford, UK (PI: Prof Bernhard Staresina) <i>Focus</i> : motor memory, iEEG, hippocampal ripples, MEG sleep and memory reactivation
06/2022-10/2023	Postdoctoral Fellow , Foster Lab, Department of Neurosurgery, University of Pennsylvania, Philadelphia, PA, USA (PI: Prof Brett Foster) <i>Focus</i> : episodic memory, sleep, iEEG, hippocampal ripples
09/2017-06/2022	Graduate Researcher , Sleep and Cognition Lab, Department of Cognitive Sciences, University of California, Irvine, CA, USA (PI: Prof Sara Mednick) <i>Focus</i> : sleep and memory, working memory, simultaneous EEG-fMRI, multi-channel EEG, closed-loop electrical brain stimulation (tACS), pharmacology, autonomic-central coupling
09/2019-06/2021	Statistical Consultant , Department of Dermatology, School of Medicine, University of California, Irvine, CA, USA (PI: Dr. Dong Joo Daniel Kim) <i>Focus</i> : epidemiology, pediatric melanoma
04/2015-08/2017	Undergraduate Researcher , Sleep Lab, Department of Psychology, National Chengchi University, Taiwan (PI: Prof Chien-Ming Yang) <i>Focus</i> : chronic insomnia, acute insomnia, attentional biases, polysomnography
01/2016-06/2016	Undergraduate Researcher , Eye Movement and Reading Lab, Department of Psychology, National Chengchi University, Taiwan (PI: Prof Jie-Li Tsai) <i>Focus</i> : eye-tracker, parsing and eye-movement in reading Chinese

Awards & Honours

2024-2026	Junior Research Fellowship, Wolfson College, University of Oxford (£10,000)
2024-2025	Wellcome Centre for Integrative Neuroimaging Seed Grant, University of Oxford (£15,000)
2023-2025	Marie Skłodowska-Curie Postdoctoral Fellowship, Horizon Europe (€221,000)
2019-2022	Undergraduate Research Grant Recipient Advisor (3 times), UCI (\$2,400)
2022	AGS Recovery Fellowship, Associated Graduate Students, UCI (\$1,000)
2022	Conference Travel Grant Award, Associated Graduate Students, UCI (\$250)
2021	Grant Writing Fellowship, School of Social Sciences, UCI (\$7,000)
2021	Cascade Mentoring Fellow, Graduate Division, UCI (\$6,000)
2021	Jean-Claude Falmagne Research Award, UCI (\$3,000)
2021	Renée Harwick Advanced Graduate Student Award, UCI (\$1,000)
2021	Outstanding Scholarship Award, School of Social Sciences, UCI (\$250)
2021	Grad Slam Semi-Finalist, Graduate Division, UCI (Honorary)
2020	Graduate Fellow, Division of Teaching Excellence and Innovation, UCI (\$5,000)
2017	NVIDIA GPU Grant, NVIDIA Corporation (\$2,000)
2017	Government Scholarship to Study Abroad, Ministry of Education, Taiwan (\$32,000)
2017	Honorary member of the Phi Tau Phi Scholastic Honor Society (Honorary)
2017	Outstanding Graduating Award, National Chengchi University (\$1,000)

Peer-Reviewed Publications

11. Anjana Subramoniam, **Pin-Chun Chen**, Negin Sattari, Sara Mednick, Lauren Whitehurst (Under Review) Physiological sleep correlates of positive and negative affect in younger and older adults. *Psychophysiology*.
10. Alessandra Shuster, **Pin-Chun Chen**, Hamid Niknazar, Elizabeth McDevitt, Beth Lopour, and Sara Mednick. (Accepted) Novel Electrophysiological Signatures of Learning and Forgetting in Human REM Sleep. *Journal of Neuroscience*.
9. **Pin-Chun Chen**, Jing Zhang, Julian F. Thayer, and Sara C. Mednick. (2022) Understanding the roles of central and autonomic activity during sleep in the improvement of working memory and episodic memory. *Proceedings of the National Academy of Sciences*, 119(44), e2123417119.
8. **Pin-Chun Chen**, Katharine C. Simon, Negin Sattari, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick. (2022) Autonomic Central Coupling during Daytime Sleep Differs between Older and Younger People. *Neurobiology of Learning and Memory*, 107646.
7. **Pin-Chun Chen**, Hamid Niknazar, William A Alaynick, Lauren N. Whitehurst, and Sara C. Mednick. (2021) Competitive dynamics underlie cognitive improvements during sleep. *Proceedings of the National Academy of Sciences*, 118(51), e2109339118.
6. **Pin-Chun Chen**, Negin Sattari, Lauren N. Whitehurst, and Sara C. Mednick (2021) Age-related loss in cardiac autonomic activity during a daytime nap. *Psychophysiology*, 58(7), e13701.
5. Dong Joo Kim, Joy Makdisi, Christina Regan, **Pin-Chun Chen**, Elizabeth Chao, Adam M. Rotunda. (2021b) Reconstruction of distal nasal defects using free cartilage batten grafting with secondary intention healing: a retrospective case series of 129 patients. *Dermatologic Surgery*, 47(1), 86-93.
4. Dong Joo Kim, Tze-An Yuan, **Pin-Chun Chen**, Feng Liu-Smith, Natasha Atanaskova Mesinkovska, Hege Grande Sarpa. (2021a) Pediatric melanoma in the Hispanic population: an analysis of institutional and national data. *Pediatric Dermatology*, 38.5 (2021): 1102-1110
3. **Pin-Chun Chen**, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick. (2020b) Coupling of autonomic and central events during sleep boosts working memory in healthy adults. *Neurobiology of Learning and Memory*, 173, 107267.
2. **Pin-Chun Chen**, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick. (2020a) Autonomic activity during a daytime nap facilitates working memory improvement. *Journal of Cognitive Neuroscience*, 32 (10), 1963-1974
1. Lauren N. Whitehurst, **Pin-Chun Chen**, Mohsen Naji, and Sara C. Mednick. (2020) New directions in sleep and memory research: the role of autonomic activity. *Current Opinion in Behavioral Sciences*, 33, 17-24.

Academic Papers in Preparation

* These authors contributed equally to the work

Jing Zhang*, **Pin-Chun Chen***, Arielle Tambini, Sara C. Mednick. How do slow oscillations facilitate working memory improvement? A simultaneous EEG-fMRI study.

Talks at Scientific Conference

Hippocampal ripples during offline periods predict motor sequence learning. Data Blitz at the Annual Meeting of Cognitive Neuroscience Society, Toronto, Canada (2024, April)

Integrating measurements of the autonomic nervous system and heart-brain interactions with sleep and memory research. Speaker at the 3rd International Sleep Replay Workshop, Huntington Beach, CA, USA (2023, April)

Working and episodic memory vie for resources during sleep. Open-paper speaker at Learning & Memory 2023, Huntington Beach, CA, USA (2023, April)

The role of the autonomic nervous system in the science of sleep. Symposium speaker at the 35th Annual Meeting of the American Associated Professional Sleep Societies (Virtual; 2021, June)

The sleeping brain switches from frontal-subcortical working memory to hippocampal episodic memory processing during NREM sleep. Speaker at the 35th Annual Meeting of the American Associated Professional Sleep Societies (Virtual; 2021, June)

Competitive dynamics underlie cognitive improvements during sleep. Speaker at the 2021 Virtual Working Memory Symposium (Virtual; 2021, June)

The sleeping brain switches between working memory and long-term memory processing. Data blitz speaker at the Spring Conference at UCI Center for the Neurobiology of Learning and Memory, Irvine, CA (2021, May)

Trust your heart in sleep to fight against cognitive aging. Speaker at UCI Center for the Neurobiology of Learning and Memory Award Ceremony, Irvine, CA (2021, May)

The sleeping brain switches between frontal-subcortical working memory to hippocampal episodic memory processing during NREM sleep. UCI Associated Graduate Student Virtual Symposium (Virtual; 2021, April)

Vagolytic effect of Zolpidem on Sleep-dependent Memory: A Trade-off between Working Memory and Long-term Memory. Speaker at the 2020 Neuromatch conference 3.0 (Virtual; 2020, Oct)

Unsupervised Learning of Sleep Stages from Polysomnography (PSG) Data. Speaker at the 2nd Annual Computational Data Neuroscience Symposium (Virtual; 2020, Oct)

Age-related Losses in Cardiac Autonomic Activity during a Daytime Nap. Speaker at the 2nd Annual Computational Data Neuroscience Symposium (Virtual; 2020, Oct)

Coupling of Autonomic and Central events during Sleep Boosts Working Memory in Healthy Young Adults. Speaker at the 2020 Virtual Working Memory Symposium (Virtual; 2020, June)

The Roles of Autonomic Activities during Sleep on Cognition. Speaker at the Spring Conference at UCI Center for the Neurobiology of Learning and Memory (2019, May)

Posters at Scientific Conference

Alison B. Morehouse, Katharine C. Simon, Jing Zhang, **Pin-Chun Chen**, Lauren N. Whitehurst, Sara C. Mednick (2023, April) Does cardiac autonomic variation across sleep stages differentially impact emotional and neutral memory consolidation? Poster at Learning & Memory 2023, Huntington Beach, CA, USA

Alessandra Shuster, **Pin-Chun Chen**, Hamid Niknazar, Sara C. Mednick (2023, April) Identifying Novel Markers of Memory in REM Sleep. Poster at the International Conference on Learning & Memory 2023, Huntington Beach, CA, USA

Pin-Chun Chen, Jing Zhang, Arielle Tambini, Sara C. Mednick (2022, June) How do Slow Oscillation and Vagal Activity Support Working Memory? An EEG/fMRI Study. Poster at the 35th Annual Meeting of the American Associated Professional Sleep Societies, Charlotte, NC, USA

Anjana Subramoniam, **Pin-Chun Chen**, Sara Mednick, Lauren N. Whitehurst (2022, June) Slow oscillation power and heart rate variability during sleep predicts next-day subjective sleepiness in healthy young adults. Poster at the 35th Annual Meeting of the American Associated Professional Sleep Societies, Charlotte, NC, USA

Pin-Chun Chen, Lauren N. Whitehurst, Hamid Niknazar, William A Alaynick, Lauren N. Whitehurst, and Sara C. Mednick (2021, Aug) Competitive dynamics underlie cognitive improvements during sleep. Poster at the 41st Annual Conference of North America Taiwanese Professors' Association (Virtual)

Pin-Chun Chen, Lauren N. Whitehurst, Hamid Niknazar, William A Alaynick, Lauren N. Whitehurst, and Sara C. Mednick (2021, April) The sleeping brain switches between working memory and long-term memory processing. Poster at the Women in STEM Symposium 2021 (Virtual)

Pin-Chun Chen, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick (2020, Aug) Age-related changes in central autonomic couplings during sleep. Poster at the 34th Annual Meeting of the American Associated Professional Sleep Societies (Virtual)

Pin-Chun Chen, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick (2019, Sep) Coupling of autonomic and central events during sleep boosts working memory in healthy young adults. Poster at the Annual Meeting of the World Sleep Congress, Vancouver, BC, Canada

Pin-Chun Chen, Negin Sattari, Lauren N. Whitehurst, and Sara C. Mednick (2019, June) Parasympathetic activity during sleep, but not wake, facilitates working memory improvement: A comparison of young and older adults. Poster at the Annual Meeting of the World Sleep Congress, Vancouver, BC, Canada

Pin-Chun Chen, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick (2019, June) Coupling of autonomic and central events during sleep boosts working memory in healthy young adults. Poster at the 33rd Annual Meeting of the American Associated Professional Sleep Societies, San Antonio, TX, USA

Pin-Chun Chen, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick (2018, April) A daytime nap facilitates working memory in healthy young adults. Poster at the International Conference on Learning & Memory 2018, Huntington Beach, CA, USA

Pin-Chun Chen, Ya-Wen Jan, and Chien-Ming Yang (2016, June). Discrepancy between subjective and objective actigraphic sleep estimation for individuals with low and high sleep vulnerability. Poster at the 30th Annual Meeting of the American Associated Professional Sleep Societies, Denver, CO, USA

Invited Talks

The central-autonomic seesaw of sleep-dependent episodic memory and working memory improvements. Institute of Neuroscience Seminar, National Yang Ming Chiao Tung University, Taipei, Taiwan (2022, Oct)

Competitive dynamics underlie cognitive improvements during sleep. Cognitive Sciences Graduate Student Presentation Bonanza, UCI, Irvine (2022, May)

Neural mechanisms of sleep and memory consolidation. Guest lecture on Sleep & Memory at UCI, Virtual (Virtual; 2021, May)

Trust your heart during sleep in the fight against cognitive aging. Speaker at UCI Grad Slam (Virtual; 2021, Jan)

Understanding sleep disorders via subjective and objective assessments. Guest lecture on Sleep & Consciousness at UCI (Virtual; 2020, Nov)

Sleep interventions to boost memory. Guest lecture on Sleep & Consciousness at UCI (Virtual; 2020, Nov)

Cued memory reactivation during sleep influences skill learning. Guest lecture on Sleep & Memory at UCI (Virtual; 2020, May)

Autonomic-central couplings during sleep drives sleep-dependent working memory gains. Cognitive Sciences Graduate Student Presentation Bonanza, UCI, Irvine (2020, Jan)

Age-related sleep and cognitive declines: sleep disorders and etiology. Guest lecture on Sleep & Consciousness at UCI (2019, Nov)

Supervision

2023-2024 First-year PhD student analyzing intracranial EEG data on sleep and memory, and conducting MEG experiments – Manqi Sha

2020-2022 First-year PhD student analyzing large-scale heart-rate-variability and sleep EEG data, poster presentation at SLEEP 2022, manuscripts under review on Psychophysiology – Anjana Subramoniam

2020-2022 First-year PhD student analyzing EEG bursts activity during rapid-eye-movement (REM) sleep, manuscript in preparation, poster presentation at Learning & Memory 2023, manuscripts published on Journal of Neuroscience – Alessandra Shuster

2021-2022 Undergraduate research assistant recording simultaneous EEG-fMRI during overnight sleep and conducting behavioural experiments, UCI undergraduate research grants, poster presentation at UCLA Psychology Undergraduate Research Conference (PURC) – Shreya Cho, Kevin Sam, Ash Arumugam, Spencer Mair, Ashley Chen

2018-2022 Undergraduate research assistant recording EEG combined with electrical brain stimulation (tACS) during a daytime nap and conducting behavioural experiments, UCI undergraduate research grants – Mathew Bayati, Myca Cabuay, Nancy Liu, Angelica Busciglio, Ashley Chen, Suyeon Hwang, Cassandra Delvey

Teaching Experience

Department of Cognitive Sciences, University of California Irvine

Instructor of Record

Probability and Statistics in Psychology II, Summer 2021

Lab Instructor/ Teaching Assistant

Probability and Statistics in Psychology II, Winter 2021, with Dr. Jeff Rouder

Probability and Statistics in Psychology I, Winter 2021, with Dr. Alex Etz

Advanced Experimental Psychology, Winter 2019, with Dr. Aaron Bornstein

Computer-Based Research in Social Science, Fall 2018, with Dr. Paul Shirey

Teaching Assistant

Language and the Brain, Spring 2019, with Dr. Greg Hickok

Psych Fundamentals, Summer 2019, with Dr. Alex Bower

Sleep & Consciousness, Fall 2019, with Dr. Sara Mednick

Division in Teaching Excellence and Innovation (DTEI), University of California Irvine

Graduate Pedagogical Fellow

Psych Fundamentals, Summer 2020, with Dr. Megan Peters

Department of Statistics, University of California Irvine

Lab Instructor/ Teaching Assistant

Basic Statistics, Winter 2020, with Dr. Lee Kucera

Introduction to Biostatistics, Spring 2020, with Dr. Brigitte Baldi

Department of Psychology, National Chengchi University

Teaching Assistant

Introduction to Eye Movements and Cognition, Spring 2016, with Dr. Jie-Li Tsai

Media Spotlight

Soc sci shout out: Pin-Chun Chen, cognitive sciences Ph.D. '22. UCI News. May 31, 2022.

<https://www.socsci.uci.edu/newsevents/news/2022/2022-05-31-pin-chun-chen-shout-out>

Pin-Chun Chen, UCI cognitive sciences graduate student, studies how your brain stays busy while you snooze

UCI News. November 2, 2021. <https://www.socsci.uci.edu/newsevents/news/2021/2021-11-02-pin-chun-chen-cog-sci.php>

UCI-led study is first to find that long- and short-term memory vie for brain space. UCI News. December 14, 2021.

<https://news.uci.edu/2021/12/14/uci-led-study-is-first-to-find-that-long-and-short-term-memory-vie-for-brain-space/>

Pin-Chun Chen named one of two Outstanding Scholar award recipients in social sciences. UCI News. June 1, 2021.

<https://www.socsci.uci.edu/newsevents/news/2021/2021-06-01-pin-chun-chen-outstanding-scholar.php>

Reviewer Duties

Current Biology, PNAS, eLife, Applied Psychophysiology and Biofeedback

Ongoing Collaborations

University of Oxford, UK: Prof Bernhard Staresina, Prof Mark Woolrich

University of Pennsylvania, USA: Prof Brett Foster, Prof Daniel Yoshor, and Prof Michael Beauchamp

University of California Irvine, USA: Prof Sara Mednick, Prof Julian Thayer

The Nathan S. Kline Institute for Psychiatric Research, Prof Arielle Tambini

University of Kentucky, USA: Prof Lauren Whitehurst