

**CURRICULUM VITAE**  
**Pin-Chun Chen, PhD**  
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## **Research Interests**

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My research interests broadly entail the processes during sleep that are important for health and cognitive functions. My work investigates how autonomic and central nervous system factors interact to produce regulatory effects on sleep-dependent health and memory enhancement. By harnessing physiological biomarkers during sleep and understanding the neural mechanisms of memory declines, my work aims to develop interventional tools (brain stimulation, pharmacology) that target at sleep and counteract age-related cognitive declines.

## **Education**

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05/2022	PhD, Cognitive Sciences, University of California, Irvine, Irvine, CA Dissertation Title: Heart-brain Interaction during NREM Sleep Drives Sleep-dependent Memory. Advisor: Dr. Sara Mednick Committees: Dr. Julian Thayer, Dr. Bryce Mander, Dr. Susanne Jaeggi, Dr. Aaron Bornstein
06/2020	MSc, Statistics, University of California, Irvine, Irvine, CA
06/2017	BS, Psychology, National Chengchi University, Taipei, Taiwan
06/2017	BEd, Education, National Chengchi University, Taipei, Taiwan
08/2021	Preparing for a Faculty Career Certificate Program, University of California, Irvine, Irvine, CA
08/2021	Mentoring Excellence Program, University of California, Irvine, Irvine, CA
06/2021	Cascading Mentorship Certificate, University of California, Irvine, Irvine, CA
03/2021	Public Speaking Certification, University of California, Irvine, Irvine, CA
01/2021	Certificate in Teaching Excellence, University of California, Irvine, Irvine, CA
08/2020	Certificate in Course Design, University of California, Irvine, Irvine, CA
08/2020	Certificate in Remote Instruction, University of California, Irvine, Irvine, CA

## **Honors & Awards**

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2019-2022	Undergraduate Research Grant Recipient Advisor (3 times), UC Irvine (\$2,400)
2021	Grant Writing Fellow, School of Social Sciences, UC Irvine (\$7,000)
2021	Cascade Mentoring Fellow, Graduate Division, UC Irvine (\$6,000)
2021	Jean-Claude Falmagne Research Award, UC Irvine (\$3,000)
2021	Renée Harwick Advanced Graduate Student Award, UC Irvine (\$1,000)
2021	Outstanding Scholarship Award, School of Social Sciences, UC Irvine (\$250)
2021	Conference Grant Award, Associated Graduate Students, UC Irvine (\$250)
2021	Grad Slam Semi-Finalist, Graduate Division, UC Irvine
2020	DTEI Graduate Fellow, Division of Teaching Excellence and Innovation, UC Irvine (\$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
2017	Outstanding Graduating Award (1st Class Honor), National Chengchi University, Taiwan
2014-2017	Student of Honor Presidential Award (6 times), National Chengchi University, Taiwan (\$1,000)
2015	Outstanding Undergraduate Student Award, Lung Shan Temple, Taiwan, 2015 (\$350)

## Peer-Reviewed Publications

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9. **Pin-Chun Chen**, Jing Zhang, Julian F. Thayer, and Sara C. Mednick. (*Minor Revision*) 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*
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*
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*
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*
5. Dong Joo Kim, Joy Makdisi, Christina Regan, **Pin-Chun Chen**, Elizabeth Chao, Adam M. Rotunda (2021) Reconstruction of distal nasal defects using free cartilage batten grafting with secondary intention healing: a retrospective case series of 129 patients. *Dermatologic Surgery*
4. Dong Joo Kim, Tze-An Yuan, **Pin-Chun Chen**, Feng Liu-Smith, Natasha Atanaskova Mesinkovska, Hege Grande Sarpa (2021) Pediatric melanoma in the Hispanic population: an analysis of institutional and national data. *Pediatric Dermatology*
3. **Pin-Chun Chen**, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick (2020) Coupling of autonomic and central events during sleep boosts working memory in healthy adults. *Neurobiology of Learning and Memory*
2. **Pin-Chun Chen**, Lauren N. Whitehurst, Mohsen Naji, and Sara C. Mednick (2020) Autonomic activity during a daytime nap facilitates working memory improvement. *Journal of Cognitive Neuroscience*
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*

## Oral Presentations/ Invited Talks

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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; 2020, 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)

Neural mechanisms of sleep and memory consolidation. Guest lecture on Psych 129 Sleep & Memory at UCI, Virtual (Virtual; 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)

Trusting Your Heart during Sleep in the Fight Against Cognitive Aging. Speaker at the UCI Grad Slam Semi-Final Competition (Virtual; 2021, Jan)

Understanding Sleep Disorders via Subjective and Objective Assessments. Guest lecture on Psych 121S Sleep & Consciousness at UCI (Virtual; 2020, Nov)

Sleep Interventions to Boost Memory. Guest lecture on Psych 121S Sleep & Consciousness at UCI (Virtual; 2020, Nov)

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)

Spindles switch the sleeping brain from frontal lobe to hippocampal processing: a pharmacology study. Speaker at UCI CogSci Colloquium Flash Talks Series (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)

Cued memory reactivation during sleep influences skill learning. Guest lecture on Psych 129 Sleep & Memory at UCI (Virtual; 2020, May)

Autonomic-central couplings during Sleep Drives Sleep-dependent Working Memory Gains. Cognitive Science Advancement Talk at UCI (Virtual; 2020, May)

Autonomic-central couplings during Sleep Drives Sleep-dependent Working Memory Gains. Cognitive Science 3rd-year Talk at UCI, Irvine (2020, May)

Age-related Sleep and Cognitive Declines: Sleep Disorders and Etiology. Guest lecture on Psych 121S Sleep & Consciousness at UCI (2019, Nov)

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)

Enhancing Working Memory by Closed-loop tACS during NREM Sleep. Concentration Talk at UCI (2019, Feb)

Why Do We Sleep? The Impacts of Sleep on Emotion and Memory. Guest speaker at Academic Salon at Taiwanese Graduate Student Association at UCI (2017, Dec)

### **Peer-reviewed Abstracts**

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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 presented at the 35th Annual Meeting of the American Associated Professional Sleep Societies

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 presented at the 35th Annual Meeting of the American Associated Professional Sleep Societies

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 presented 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 presented 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 presented 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 presented 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 presented 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 presented at the 33th 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 presented at the 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 presented at the 30th Annual Meeting of the American Associated Professional Sleep Societies, Denver, CO, US

## **Teaching Experience**

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### **Department of Cognitive Science, University of California Irvine**

#### **Instructor of Record**

Probability and Statistics in Psychology II, Summer 2021

#### **Guest Lecturer**

Sleep & Consciousness, Fall 2019, 2020, 2021

Sleep & Memory, Spring 2020, 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**

#### **DTEI Graduate 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

## **Service Activities**

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### **Ad-hoc Reviewing**

Proceedings of the National Academy of Sciences of the United States of America

Applied Psychophysiology and Biofeedback

Current Biology

### **Advising and Mentoring Undergraduate Students**

Ash Arumugam, 2021-2022 (Undergraduate Research Grant)

Spencer Mair, 2021-2022 (Undergraduate Research Grant)

Shreya Cho, 2021-2022 (Undergraduate Research Grant)

Kevin Sam, 2021-2022 (Undergraduate Research Grant)  
Ashley Chen, 2019-2022  
Nancy Liu, 2018-2020  
Myca Cabuay, 2018-2020  
Angelica Busciglio, 2018-2020 (Undergraduate Research Grant)  
Mathew Bayati, 2017-2020 (Undergraduate Thesis)  
Suyeon Hwang, 2017-2019  
Cassandra Delvey, 2017-2019 (Undergraduate Poster Presentation)

### **Departmental Service**

Writing Workshop Leader, 2021-2022  
Mentor a group of Cognitive Sciences PhD students to improve well-being and productivity.

DTEI Transitioning Online Teaching Fellow, 2020  
Help faculty members transition in-person courses to online teaching

CogSci Colloquium Transcriber, 2020  
Help transcribe slides for audiences who need transcription services.

First-Year Graduate Student Mentor, 2019-2020  
Mentor for incoming first-year graduate students new to the school

Statistical Consultant for Dermatology Studies, 2019-2020

Graduate Student Panel, Social Science Academic Resource Center, 2018-2019

Coordinator, the Annual Meeting of Taiwan Association of Clinical Psychology, 2016  
Prepared for the facilities, program books, name badges and refreshments  
Received the lecturers and over 300 attendees

Coordinator, Taiwan Society of Sleep Medicine (TSSM), 2016-2017  
Organized the Assessment and Management of Pediatric Behavioral Sleep Disorders Workshop  
Received the speaker, Dr. Jodi A. Mindell

Conference Coordinator for Taiwan Society of Sleep Medicine meeting, 2017  
Received the keynote speaker, Dr. Phyllis C. Zee

Peer Tutor for Psychology and Statistics, National Chengchi University, 2015-2017

### **Membership in Professional Societies**

Sleep Research Society, 2016 – present  
American Academy of Sleep Medicine, 2016 – present  
Society for Neuroscience, 2018 – present  
Psychophysiology, 2020 – present

### **Media Spotlight:**

[\*The brain and sleep.\* UCI News. November 2, 2021.](#)  
[\*UCI-led study is first to find that long- and short-term memory vie for brain space.\* UCI News. December 14, 2021.](#)