

Chin-Hui Chen

PHD STUDENT, NEUROSCIENCE, VIRGINIA TECH

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Summary

Current PhD student at VT School of Neuroscience with over 3 years of experience in computational neuroscience, focusing on brain-computer interfaces, sleep, and memory. Aiming for graduation and seeking a post-doctoral research opportunity.

Research Interests

Computational Neuroscience, Sleep and Memory, Bio-inspired Memory Models.

Education

Ph.D. Neuroscience

Blacksburg, VA, USA

VIRGINIA TECH, GPA 3.96

2022 - current

- Neural Dynamics and Neural Engineering Lab. Advisor: Dr. Sujith Vijayan.
- Target memory reactivation and biophysical models in brain-computer interface.
- Research in sleep and memory using EEG and iEEG.
- Brain-computer interface algorithms and applications.

M.S. Computer Science

Taipei, Taiwan

NATIONAL TAIWAN UNIVERSITY, GPA 4.00

2013

- Information Retrieval and Web Mining Lab. Advisor: Dr. Pu-Jen Cheng.
- ML-based time series prediction (support vector machine and neural network).
- Disease classification and surveillance system using machine learning and data mining algorithms.

B.S. Computer Science

Taipei, Taiwan

NATIONAL TAIWAN UNIVERSITY, GPA 3.80

2009

- 7 of 120 students in terms of final GPA for 2006 spring semester.
- 8 of 120 students in terms of final GPA for 2007 spring semester.
- 15 of 100 students in terms of overall semesters.

Experience

Neural Dynamics and Neural Engineering Lab, Virginia Tech

Blacksburg, VA, USA

LABORATORY TECHNICIAN, ADVISOR: PROF. SUJITH VIJAYAN

2021 - 2022

- EEG / iEEG data collection.
- Analyzing brain computer interface task.

Center for Research in Cognitive Science, National Chung Cheng University

Chiayi, Taiwan

RESEARCH ASSISTANT, ADVISOR: PROF. CHON-WEN GARY SHYI, PROF. SHIH-TSENG TINA HUANG

2019 - 2020

- Dynamic Causal Modeling for fMRI/MEG/EEG.
- MEG data collection, preprocessing and analysis (brainstorm, fieldtrip).

Machine Discovery and Social Network Mining Lab, National Taiwan University

Taipei, Taiwan

RESEARCH ASSISTANT, ADVISOR: PROF. SHOU-DE LIN

2017 - 2019

- Memory augmented neural network research.
- Memory-based and relational-based model for natural language reasoning (NLR) tasks.

Skysource and HopeBay Tech, Data Science Startup

Taipei, Taiwan

DATA ENGINEER

2013 - 2017

- Data cleansing, ETL Process in data warehouse (MSSQL, SSIS).
- Distributed database (MariaDB and MongoDB cluster).

Teaching Experience

School of Neuroscience, Virginia Tech

Blacksburg, VA, USA

GRADUATE TEACHING ASSISTANT, NEUR-2035 NEUROSCIENCE LABORATORY II, INSTRUCTOR: DR. ZHUO FU

Spring 2024

- Lab preparation and on-site GTA assistance, 95 students.

INSTRUCTOR: DR. KRISTIN F. PHILLIPS

- Assignments (NEUR-2464, 95 students) and team project grading (NEUR-4034, 39 students).

GRADUATE TEACHING ASSISTANT, NEUR-2035 NEUROSCIENCE LABORATORY II, INSTRUCTOR: DR. ZHUO FU

Spring 2023

- Lab preparation and Zoom TA assistance, 72 students.

GRADUATE TEACHING ASSISTANT, NEUR-2036 NEUROSCIENCE LABORATORY I, INSTRUCTOR: DR. DYLAN MCDANIEL

Fall 2022

- Lab report grading and on-site GTA assistance, 79 students - 43 in-person, 36 virtual.

Computer Science, National Taiwan University

Taipei, Taiwan

TEACHING ASSISTANT, DM AND ML: THEORY AND PRACTICE, INSTRUCTOR: DR. SHOU-DE LIN

2018

- Teamed up with students for ACM KDD CUP 2018.

TEACHING ASSISTANT, WEB SEARCH AND MINING, INSTRUCTOR: DR. PU-JEN CHENG

2010

- Assignments preparation. (handwriting assignments)

TEACHING ASSISTANT, WEB SEARCH AND MINING, INSTRUCTOR: DR. PU-JEN CHENG

2009

- Assignments preparation. (Lucene, Nutch, document classification and clustering)

Abstracts & Posters

Yunruo Ni, Jeremy Decker, [Chin-Hui Chen](#), Eliza Overlock, Sujith Vijayan. Optimizing sounds for enhancing sleep neural dynamics by auditory stimulation. Translational Biology, Medicine, & Health Graduate Program Oral Presentation (2024).

Laura B. Murdaugh, Briann Brown, [Chin-Hui Chen](#), Yuyang Dong, Cristina Miliano, Starlina Shepard, Sujith Vijayan, Ann M. Gregus, Matthew W. Buczynski. Evaluation of cognitive function in male and female mice using the Feeding Experimentation Device v3 (FED3). Society for Neuroscience (SfN 2023).

Starlina Shepard, Laura B. Murdaugh, [Chin-Hui Chen](#), Sujith Vijayan, Ann M. Gregus, Matthew W. Buczynski. Effects of the FAAH P129T mutation in mice on operant responding using FED3. Dennis Dean Undergraduate Research and Creative Scholarship Conference (2023).

Connor Guarniere, [Chin-Hui Chen](#), Andrew Kvavilashvili, Sujith Vijayan. Sleep and BMI Learning. 3rd Annual Fralin Biomedical Research Institute SURF Symposium (2022).

Shih-Tseng Tina Huang, Gary C.-W. Shyi, [Chin-Hui Chen](#), Yen-Ju Lu. Cross-Modal Processing and Integration in Detecting and Discriminating Basic Emotions: A MEG Study. International Congress of Psychology (ICP 2020).

Gary C.-W. Shyi, Shih-Tseng Tina Huang, Joshua O. S. Goh, Jeremy C.-C. Lee, Ya-Yun Chen, [Chin-Hui Chen](#), Wan-Ting Hsieh, Felix F.-S. Tsai, Chi-Chuan Chen. Neural Modeling and Computational Approaches to Investigating the Brain Mechanisms Underpinning Emotional Expression Processing of East-Asian Faces. Society for Neuroscience (SfN 2019).

Ya-Yun Chen, Chi-Chuan Chen, Yu Song Haw, [Chin-Hui Chen](#), Joshua O. S. Goh, Shih-Tseng Tina Huang, Gary C.-W. Shyi. Neural Correlates of Emotional Expression Processing of East-Asian Faces: An fMRI and Dynamic Causal Modeling Investigation. Vision Sciences Society (VSS 2019).

Publications

[Chin-Hui Chen](#), Sujith Vijayan. Neural Dynamics of Sleep-Mediated Learning in Brain-Computer Interfaces. (in preparation).

Laura B. Murdaugh, Briann Brown, [Chin-Hui Chen](#), Cristina Miliano, Yuyang Dong, Starlina Shepard, Jason W. Putnam, Christine L. Faunce, Luis A. Natividad, Sujith Vijayan, Ann M. Gregus, Matthew W. Buczynski. Examining Cognitive Performance in Mice using the Open-Source Operant Feeding Device FED3. (2024) (to be submitted). [biorxiv.org](#) [github.com](#)

[Chin-Hui Chen](#)^{*}, Yi-Fu Fu^{*}, Hsiao-Hua Cheng and Shou-de Lin. Unseen Filler Generalization In Attention-based Natural Language Reasoning Models. IEEE International Conference on Cognitive Machine Intelligence (CogMI 2020) (Peer-Reviewed). [ieee.org](#) [github.com](#)

Pei-Ying Huang, Hsin-Yu Liu, [Chin-Hui Chen](#), Pu-Jen Cheng. The Impact of Social Diversity and Dynamic Influence Propagation for Identifying Influencers in Social Networks. IEEE/WIC/ACM International Conference on Web Intelligence (WI 2013) (Peer-Reviewed). [ieee.org](#)

Che-An Lu, [Chin-Hui Chen](#), Pu-Jen Cheng. Clustering and Visualizing Geographic Data Using Geo-tree. IEEE/WIC/ACM International Conference on Web Intelligence (WI 2011) (Peer-Reviewed). [ieee.org](#)

Chia-Jung Lee, [Chin-Hui Chen](#), Shao Hang Kao, Pu-Jen Cheng. To translate or not to translate? International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2010) (Peer-Reviewed). [acm.org](#)

Outreach

Explore Sciences Camps, College of Science, VT

Blacksburg, VA, USA

STAFF

2023, 2024

- Participated in the "Psychology and Neuroscience" sessions for the College of Science Explore Sciences camps.
- Engaged with 9th to 12th graders as part of the "Explore Science" camp.
- My role involved presenting neuroscience concepts and interactive games, leading sessions on "Psychology and Neuroscience," and contributing to the design of the camp's activities.

- Participated in “Flip the Fair 2023” at the Roanoke Public Libraries.
- Presented neuroscience research posters to 5th-grade students, who then served as judges. The poster I presented, co-authored with Ya-Yun Chen, was titled “How Being in Sync with Your Parents and Good Sleep Make You Feel and Learn Better.”

Presentations

IEEE Cognitive Machine Intelligence

CHIN-HUI CHEN*, YI-FU FU*.

2020

- Presenter for “Unseen Filler Generalization In Attention-based Natural Language Reasoning Models” paper.

Center for Research in Cognitive Science, National Chung Cheng University

CHIN-HUI CHEN, YA-YUN CHEN.

2020

- Presenter for Dynamic causal models (DCM) for fMRI/MEG tutorial.

Center for Research in Cognitive Science, National Chung Cheng University

CHIN-HUI CHEN

2020

- Presenter for an in-depth tutorial on the use of MEG brainstorm tool.

Research Center for Education and Mind Sciences, National Tsing Hua University

YA-YUN CHEN, CHIN-HUI CHEN

2019

- Presenter for Dynamic causal models (DCM) for fMRI tutorial.

Guest Lecture in SDML course, National Taiwan University

CHIN-HUI CHEN

2018

- Delivered a guest lecture on machine reasoning as part of the SDML course.

MSLAB-Emotibot workshop, National Taiwan University

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2017

- Presented an overview of deep reasoning models.

HopeBay Tech TechFriday Club

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2016

- Presenter for Introduction to deep learning

Mentorship

Yunruo Ni	TBMH Graduate Student Lab Rotation, Spring 2024
Jarod Le	VT PREP program, Fall 2023 – Spring 2024
Ashil Amin	Undergraduate, Spring 2024
Martha-Patience Taah	Undergraduate, Fall 2023 – Spring 2024
Harshini Venkat	Undergraduate, Fall 2023 – Spring 2024
Eliza Overlock	Undergraduate, Fall 2023 – Spring 2024
Leah Lee	Undergraduate, Spring 2023 – Spring 2024
Linda Maingua	Undergraduate, Spring 2023 – Fall 2023
Vyan Shah	Undergraduate, Spring 2023 – Fall 2023
Connor John Guarniere	NeuroSURF Program, Summer 2022 – Spring 2023

Honors & Awards

- 2018 **Honorable Prizes**, ACM KDDCUP 2018. 7th place over 4000 teams
- 2009 **The Excellent Teaching Assistant Award**, NTU Web Search and Mining Course
- 2009 **Special Award**, Yahoo Open Hack Day!
- 2008 **Mobile Communication Award**, Yahoo Open Hack Day!

Professional Membership

IEEE Computer Society Member 2020