

EDUCATION

- **University of Florida** Gainesville, FL
PhD Candidate in Biobehavioral Science, GPA 3.9/4
Thesis title: "Neuroimaging sensorimotor circuits in chronic pain using high-density electroencephalography. Supervisor: Stephen A Coombes, Ph.D.
Aug. 2015 - May. 2020 (expected)
- **Chang Gung University** Taoyuan, Taiwan
Master of Science in Rehabilitation Science
Supervisors: Ching-yi Wu, Ph.D.& Keh-chung Lin, Ph.D.
Aug. 2012 - June. 2014
- **National Taiwan University** Taipei, Taiwan
Bachelor of Science in Occupational Therapy
Jun. 2008 - Jun. 2012

PROFESSIONAL EXPERIENCES

- **Graduate Research Assistant** 2015 - present
University of Florida
- **Graduate Teaching Assistant** 2012 - 2015
Chang Gung University

RESEARCH INTERESTS

My research focuses on using neuroimaging techniques including electroencephalography (EEG), magnetic resonance imaging (MRI), functional MRI (fMRI), diffusion tensor imaging (DTI) to investigate neural mechanisms in pain and motor control for chronic musculoskeletal pain.

Specifically, I am interested in:

- Investigating long-term consequences of chronic pain on brain functions associated with pain perception and motor control
- Characterizing neural oscillations during motor-evoked pain and force production
- Innovative rehabilitation interventions (e.g. virtual reality) for neurological/ pain disorders

This research combines quantitative behavioral measures of force control, electromyography (EMG), subjective pain evaluation, quantitative sensory testing etc.

JOURNAL PUBLICATIONS

- [1] W. E. Wang, A. Roy, G. Misra, R. L. Ho, M. C. Ribeiro-Dasilva, R. B. Fillingim, and S. A. Coombes, "Altered neural oscillations within and between sensorimotor cortex and parietal cortex in chronic jaw pain," *NeuroImage: Clinical*, vol. 24, no. May, p. 101964, 2019.
- [2] A. Roy, W. E. Wang, R. L. M. Ho, M. C. Ribeiro-Dasilva, R. B. Fillingim, and S. A. Coombes, "Functional brain activity during motor control and pain processing in chronic jaw-pain," *Pain*, vol. 159, no. 12, pp. 2547–2564, 2018.
- [3] S. A. Coombes, W. E. Wang, A. Roy, and R. L. M. Ho, "Neurophysiological evidence of the dynamic and adaptive pain-motor interaction," *The Journal of Physiology*, vol. 596, no. 14, pp. 2639–2640, 2018.
- [4] W. E. Wang, A. Roy, G. Misra, D. B. Archer, M. C. Ribeiro-Dasilva, R. B. Fillingim, and S. A. Coombes, "Motor-Evoked Pain Increases Force Variability in Chronic Jaw Pain," *The Journal of Pain*, 2018.
- [5] G. Misra, W. E. Wang, D. B. Archer, A. Roy, and S. A. Coombes, "Automated classification of pain perception using high-density electroencephalography data," *Journal of Neurophysiology*, vol. 117, no. 2, pp. 786–795, 2017.
- [6] Y. W. Hsieh, C. Y. Wu, W. E. Wang, K. C. Lin, K. C. Chang, C. C. Chen, and C. T. Liu, "Bilateral robotic priming before task-oriented approach in subacute stroke rehabilitation: a pilot randomized controlled trial," *Clinical Rehabilitation*, vol. 31, no. 2, pp. 225–233, 2017.

MANUSCRIPTS IN PROGRESS

W. E. Wang et al. Chronic jaw pain attenuates neural oscillations during motor-evoked pain. (under review)

W. E. Wang et al. Source localized electroencephalographic changes in virtual reality during full-body reaching movement. (in preparation)

TEACHING EXPERIENCES

Course teaching

Undergraduate

Movement Neuroscience (Pain System). Guest Lecture. Spring 2019, Spring 2017.

Occupational Therapy for Physical Disabilities. Small Group Tutoring. Fall 2012, Spring 2013.

Mentoring

Undergraduate

Eleya Fangonilo (2015-2017: Undergraduate Scholars Program)

Iana Escobar (2016 - 2017)

Alicia L Bisplinghoff (2018 - 2019)

Het Patel (2018 - present)

Graduate

Breon Clark (2019 UCF Summer Exchange Program)

GRANTS AND FELLOWSHIP

Graduate School Fellowship Award, University of Florida, 2015-2019

Received 4-year full-tuition scholarship with stipend awarded to outstanding incoming PhD student

Government Scholarship to Study Abroad, Ministry of Education Taiwan, 2015-2017 (Not Funded)

Title: Neuropathology of chronic pain and motor control in temporomandibular disorders (TMD)

Amount: 48,000/3 years.

PRESENTATION

Conferences

Wang WE, Ho R, Coombes SA. (2019). Altered Alpha and Beta Oscillations in Parietal and Occipital Cortices in Chronic Jaw Pain. Society for Neuroscience. Chicago, IL.

Wang WE, Roy A, Misra G, Archer DB, Ribeiro-Dasilva MC, Fillingim RB, Coombes SA. (2018). Chronic Jaw Pain is Characterized by Altered Beta Oscillations in Sensorimotor and Prefrontal Cortex. CuttingEEG Conference 4th Symposium on cutting-edge methods for EEG Research. Paris. France.

Roy, A. **Wang WE**, Ho R, Ribeiro-Dasilva MC, Fillingim RB, Coombes SA. (2018) Functional Brain Activity During Motor Control and Pain Processing in chronic jaw-pain. Neural Control of Movement. Santa Fe, NM.

Wang WE, Roy A, Misra G, Archer DB, Ribeiro-Dasilva MC, Fillingim RB, Coombes SA. (2018). Chronic Jaw Pain is Characterized by Altered Beta Oscillations in Sensorimotor and Prefrontal Cortex. Organization for Human Brain Mapping Annual Meeting. Singapore.

Wang WE, A. Roy, S. Coombes. (2017). Motor-evoked Pain Increases Force Variability in Chronic Jaw Pain. Progress in Motor Control XI. Miami, FL.

Wang WE, A. Roy, S. Coombes. (2017). Motor-evoked Pain Increases Force Variability in Chronic Jaw Pain. Society for Neuroscience. Washington, DC.

G. Misra, **W. Wang**, S. Coombes. (2016). High-density Electroencephalography and Automated Classification of Pain Perception. Society for Neuroscience. San Diego, CA.

W-E. Wang, Ching-yi Wu, Yi-wen Wang, Yu-wei Hsieh, Keh-chung Lin. (2015). The Efficacy of Robotic-Assisted Training Combined with Functional Task Training on Motor Impairment, Functional Independence, and Quality of Life in Subacute Patients with Stroke. 9th World Congress of the International Society of Physical and Rehabilitation Medicine (ISPRM 2015). Berlin, Germany.

W-E. Wang, Wu, C-Y., Wang, I-W., Hsieh, Y-W., Lin, K-C., & Pan, C-H. (2014). Effects of stroke rehabilitation and association of biomarker HbA1c with functional outcome in subacute stroke. The 2014 OTUROC Annual Conference. Taichung, Taiwan.

Academic Talks

Three Minute Thesis competition, University of Florida, 2019.

APK Pizza and Podium, University of Florida, 2017, 2019.

LRN Lab Seminar, University of Florida, 2017.

UF Graduate Student Research Day, University of Florida, 2017.

QUALIFICATIONS/ SKILLS

- **Occupational Therapist licensure:** Registered OT, Ministry of Health and Welfare, Taiwan
- **Programming Languages:** MATLAB, R, Python, LaTeX
- **Teaching Certificate:** Great Teaching for New Faculty Certificate, University of Florida
- **Hardware:** MotionMonitor, ActiveTwo - Biosemi, Trigno - Delsys, Motion Capture - VICON, VIVE
- **Software:** SPSS, Tableau, EEGLab, Fieldtrip, AFNI, Brainstorm, Inkscape, CorelDraw, Photoshop

SERVICE TO PROFESSION

REVIEWER AD HOC (under supervision)

1. Journal of Neurophysiology
2. Journal of Pain
3. Brain Sciences
4. Journal of Neuroscience
5. Scientific Report

AWARDS AND HONORS

Patrick J. Bird Dissertation Award, University of Florida

Received the highest levels of scholarship (\$2000) in recognition of exceptional academic promise and scientific impact of Ph.D. dissertation.

Outstanding International Student Award, University of Florida

Achieved high academic performance - top 78 of all UF international students

Pain Research & Intervention Center of Excellence (PRICE) Travel Awards, University of Florida

Received \$1000 for covering the costs of attending conference

Graduate Student Council Travel Award, University of Florida

Received \$700 for covering the costs of attending conference

Honored Member of Phi Tau Phi Scholastic Honor Society, Chang Gung University

High academic achievement - Top 3% of the College of Medicine

PROFESSIONAL AFFILIATIONS

Neural Control of Movement

Organization for Human Brain Mapping

Society for Neuroscience