

# Tanya Wen

I am a mixed methods researcher and with a cognitive neuroscience and psychology background. With over 12 years of research experience, I have utilized various tools to understand human behavior, including online surveys, electrophysiological recordings, functional imaging, eye-tracking, and virtual reality.

## WORK EXPERIENCE

### Research Scientist

Oct 2022 – Present

Naval Health Research Center / Leidos, San Diego, U.S.A

- Analyzed EEG recordings in 50+ traumatic brain injury patients and healthy controls performing tasks in static and dynamic virtual reality environments.
- Designed and programmed four different virtual reality tasks in Unity / C#, using Phidgets to collect sensor data, interact with hardware, and timestamp events.
- Analyzed data from wearable eye-tracker and infrared camera while participants performed a virtual reality military marksmanship task.

### Postdoctoral Associate

Oct 2019 – Oct 2022

Center for Cognitive Neuroscience, Duke University, U.S.A

- Demonstrated cognitive training and transfer learning in a series of three experiments using hierarchical Bayesian reinforcement learning models.
- Designed and published three innovative experiments to identify new phenomena in human cognition (transfer learning, temporal memory, and relative effort).
- Collected data from over 800+ participants on Amazon Mechanical Turk across 20+ web-based experiments that I programmed using JavaScript / HTML / CSS.
- Developed fMRI processing pipeline for the lab utilizing the Duke Compute Cluster with SLURM. Wrote Python scripts for conducting general linear models.

### PhD Researcher

Oct 2015 – Sept 2019

MRC Cognition and Brain Sciences Unit, University of Cambridge, United Kingdom

- Used support vector machine on MEG/EEG data to characterize the time-courses of five different components of selective attention.
- Characterized how the MD network responses to task difficulty when performance is limited by quality of data input across two experiments.

## EDUCATION

### PhD in Medical Science

Oct 2015 – Sept 2019

MRC Cognition and Brain Sciences Unit, University of Cambridge, United Kingdom

### Bachelor of Science, Double Major

Sept 2011 – May 2015

Department of Psychology, National Cheng Kung University, Taiwan  
Department of Life Sciences, National Cheng Kung University, Taiwan

## CERTIFICATIONS

- Programming for Data Science with Python – Udacity Nanodegree
- The Complete 2023 Web Development Bootcamp – Udemy
- Unity Junior Programmer – Unity Technologies
- Foundations of eye tracking – Tobii Academy
- Basic Life Support (BLS) – American Heart Association

## CONTACT

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- github.com/tanya-wen
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## SKILLS

### Human Subjects Research Skills:

- Experimental design
- Online surveys/studies (MTurk)
- Virtual Reality
- Eye-tracking
- Participant recruitment
- IRB application

### Programming Languages:

- Python (Numpy, Pandas, SciPy, Scikit-learn, Matplotlib, Seaborn)
- MATLAB
- JavaScript / HTML / CSS
- Unity / C#
- Databases (SQL, MongoDB)
- R (lme4, tidyverse, ggplot2)

### Quantitative Skills:

- Inferential statistics (t-test, A/B test, ANOVA)
- Regression; General Linear Model
- Exploratory data analysis
- Classification (logistic regression, SVM, KNN)
- Unsupervised learning (PCA, k-means clustering)
- Time series analysis
- Graph theory
- Reinforcement learning

### Qualitative Skills:

- Interviews
- Surveys
- Participant observation
- Diary studies

### Other tools and skills:

- Microsoft Office
- Adobe Illustrator
- Adobe Photoshop
- Git and Github
- Scientific writing

### Languages:

- English
- Mandarin Chinese