Tanya Wen

I am a quantitative researcher and with a cognitive science background. With over 12 years of research experience, I have analyzed data from online surveys, electrophysiological recordings, functional imaging, and eye-tracking. I am creative, resourceful, and perseverant in solving scientific problems using data.

WORK EXPERIENCE

Research Scientist   Oct 2022 – Present
Naval Health Research Center / Leidos, San Diego, U.S.A

- Cleaned, pre-processed, and analyzed EEG recordings in 50+ traumatic brain injury patients and healthy controls, utilizing ERP analysis and k-means clustering.
- Designed and programmed four different virtual reality (VR) tasks in Unity / C#, using Phidgets to collect sensor data, interact with hardware, and timestamp events.
- Wrote custom code to analyze data from wearable eye-tracker and infrared camera using computer vision algorithms in OpenCV and pre-trained neural networks (e.g., YOLOv8, Grounding DINO, and Segment Anything Model).

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
- twitter.com/tanya_wen

SKILLS

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

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

Research Skills:
- Experimental design
- Hypothesis testing
- Online surveys/studies (MTurk)
- Virtual Reality
- Eye-tracking
- Participant recruitment
- Scientific writing

Other tools:
- Microsoft Office
- Adobe Illustrator
- Adobe Photoshop
- Git and Github

Languages:
- English
- Mandarin Chinese