TIMOTHY WENG, PHD

Computational Neuroscientist

As a PhD-trained computational neuroscientist with 9 years of data science experience with large-scale biomedical and behavioral research data, I have the unique combination of technical skills, critical thinking aptitude, and creative problem solving abilities to produce data-driven and actionable solutions to business challenges.

WORK EXPERIENCE

2018 | present

Postdoctoral Research Fellow
Computational Neuroimaging Laboratory, Dell Medical School, The University of Texas at Austin
Austin, TX

- Build, maintain, and test Python-based pipelines for processing terrabytes of multi-modal neuroimaging data on high performance computing systems
- Aggregate multiple data streams from image processing pipelines to automatically provide data quality metrics and descriptive statistics
- Build and deploy statistical models and machine learning algorithms in R and Python to predict brain aging from longitudinal cardiovascular health data (N = 1,000+)
- Write documentation on using Python-based software C-PAC for different use cases
- Identify and report software defects and work with C-PAC software engineering team to reproduce them and test patches
- Design research experiments and manage team to implement

2020 | present

Consultant
Center for Biomedical Image Computing and Analytics, Perelman School of Medicine, University of Pennsylvania
Philadelphia, PA (remote)

- Develop infrastructure for automated and efficient data processing pipeline for functional MRI data using cutting edge techniques
- Provide technical support for biomedical imaging acquisition protocols
- Educate staff on biomedical data processing

PROJECT EXPERIENCE

2012-2018

Graduate Researcher
Health, Brain, Cognition Laboratory, The University of Iowa — Iowa City, IA

- Developed software package to optimize and automate processing of functional MRI data, reducing computational time by ~150%
- Enabled our team to explore data, build statistical models, and publish results more quickly than previous implementation (10+ papers published using this code)
- Completed 5 research projects that culminated in doctoral thesis using biomedical and behavioral data to predict exercise behavior change
- Implemented multivariate analyses in R, including linear mixed effects modeling, principal components analysis, and MANCOVA
- Utilized high performance computing cluster to execute data processing and analyses in parallel

2020

ANC Neighbors
Austin New Church — Austin, TX

- Geospatial analysis of ~600 household addresses to connect church members across Austin metro in a data-driven fashion
- Built Python-based application to load and extract from database and convert them to geospatial coordinates
- Applied k-means clustering to identify geospatial clusters and classify new datapoints
- Performed basic descriptive statistics and visualizations for geospatial clusters

CONTACT INFO

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SKILLS

Python (NumPy, Pandas, SciPy, SciKit-Learn, Matplotlib),
R (Tidyverse),
Experimental Design (Randomized Control Trial), Hypothesis-driven testing (A/B testing)
Data Analysis, Advanced Statistics,
Regression Analysis (Linear, Logistic, Linear Mixed Effects),
SQL, Bash, Data Visualization, Jupyter Notebook, R Markdown, Git/GitHub, LaTeX

EDUCATION

The University of Iowa

Ph.D. in Psychology (Behavioral and Cognitive Neuroscience), 2018

Thesis: "Brain network predictors of exercise behavior change in sedentary older adults: an emotion and decision-making perspective"

University of Illinois at Urbana-Champaign

B.S. (Honors) in Psychology (Behavioral and Cognitive Neuroscience), 2011

PUBLICATIONS

For a full list of my publications (15+ articles, 500+ citations), please see my Google Scholar

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