TeYang Lau *Researcher*

📞 +65 8233 6103   ✉ ty_lau@outlook.com

Github.com/teyang-lau   Kaggle.com/teyang   Linkedin.com/in/teyang-lau/

Languages & Software: R, Python, Matlab, Tableau, SPSS, MS Office Suite

Technical Skills: **Regression** (Linear, Multiple-Linear, Logistic, Regularization), **Classification** (K-NN, SVM, Decision Tree, Random Forest, Naive Bayes, Ensemble Learning, Gradient Boosting), **Clustering** (K-Means, Hierarchical), **Neural Networks** (Deep Learning, ConvNets, PyTorch), **Statistical Analysis** (T-Test, ANOVA, Regression, Non-Parametric, Linear Mixed Models), **Data** (Cleaning, Wrangling, Visualization)

Interests: NLP, Recurrent Neural Networks, Cloud Computing, NoSQL, Geospatial Analysis, Health Analytics, Sleep Health, Psychology, Wearables, Time Series

WORK EXPERIENCE

Research Assistant | 2018 – Present
Sleep & Cognition Lab, NUS
Cognitive Neuroscience Lab, Duke-NUS Medical School

- Mined large HPB Fitbit longitudinal dataset that led to 2 publications
- Clustered >120k & analysed >300k days of Fitbit data from 1.8k+ individuals to identify 4 subgroups of Singapore working adults differentially susceptible to unhealthy behaviours during COVID-19
- Investigated the effects of napping, which improves memory encoding by 20% and benefits brain functioning
- Applied clustering approaches over existing cosinor methods for studying rest-activity rhythms, improving model fit by Corr: 26%, RMSE: 12%
- Work with external parties (HPB, Oura) to explore best approach to mining datasets
- Plan, run and collect data for behavioural and imaging studies

Research Intern | 2016 (6 months)
Cognitive Neuroscience Lab, Duke-NUS Medical School

- Wrote scripts for visualization of sleep polysomnography that led to faster and more efficient sleep report production
- Wrote scripts for automation of actigraphy scoring and extraction that led to a more productive workflow

Research Assistant (part-time) | 2015 (4 months)
Education & Cognitive Development Lab, NIE

- Administered psychological test batteries to assess children's cognitive and motor abilities

PROJECTS

Work

- Clustering rest-activity rhythms and accessing their associations with sociodemographic factors (hiSG study with HPB)
- Multi-country effects of pandemic lockdown on sleep, physical activity and resting heart rate (with Oura)
- Time analyses of large-scale Fitbit data to engineer sleep features (variability metrics)
- Clustering of sleep features to identify trait clusters and their associations with health and sociodemographic factors
- Bi-directional effects of sleep and physical activity
- Effects of life changes on rest-activity rhythms, sleep and physical activity
- Effects of napping duration on cognitive performance

Personal

- Detected pneumonia from chest x-rays using ConvNet with F1-score of 92%
- Predicted heart disease using different ML models with best accuracy of 87%
- Classified 120 dog breeds using ConvNet and transfer learning with accuracy of 88%

PUBLICATIONS

- COVID-19 related mobility reduction: heterogenous effects on sleep and physical activity rhythms. *Submitted to SLEEP,* 2020.
- A daytime nap restores hippocampal function and improves declarative learning. *SLEEP,* 2020.
- Cognitive effects of split and continuous sleep schedules in adolescents differ according to total sleep opportunity. *SLEEP,* 2020.
- Evaluation of a portable light device for phase advancing the circadian rhythm in the home environment. *Sleep Biol Rhythms,* 2018.

EDUCATION

BA Psychology (Honours)
Flinders University
1st Class Honours

BA Psychology & Management
Murdoch University
GPA: 3.75
Awards: University Medal (Top 7 Graduates), Vice Chancellor's Commendation for Academic Excellence, Psychology High Achievement Award