TeYang Lau *Researcher*

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teyang-lau.github.io 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, Ensemble Learning), **Clustering** (K-Means, Hierarchical), **Neural Networks** (Deep Learning, ConvNets), **Libraries** (Scikit-learn, Keras, PyTorch), **Statistical Analysis** (T-Test, ANOVA, Regression, Non-Parametric, Linear Mixed Models), **Data** (Cleaning, Wrangling, Visualization—ggplot2, matplotlib, seaborn, plotly)

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

WORK EXPERIENCE

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

- Mined large HPB Fitbit longitudinal dataset that led to 2 applications
- 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
- Applied clustering approaches over existing cosinor methods for studying rest-activity rhythms, improving model fit by Corr: 26%, RMSE: 12%
- Investigated the effects of napping, which improves memory encoding by 20% and benefits brain functioning
- Work with external government and industry partners (HPB, Oura) to explore best approach to mining datasets & structuring new projects
- Manage database for time use app and query data for analyses
- Plan, run and collect data for behavioural and imaging studies

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

- Automated the visualization & computation of sleep poly-somnography that expedited the sleep report generation process
- Automated actigraphy scoring and extraction that led to a more productive and efficient 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

PUBLICATIONS

- Objectively tracking the global sleep reboot from COVID-19 lockdowns across 20 countries (manuscript in preparation)
- COVID-19 related mobility reduction: heterogenous effects on sleep and physical activity rhythms. *SLEEP,* 2020.
- A daytime nap restores hippocampal function and improves declarative learning. *SLEEP,* 2020. Editor's choice.
- 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.

PROJECTS

Work

- Multi-country effects of pandemic lockdown stringency on sleep, physical activity and resting heart rate (with Oura)
- Sleep intervention to improve population sleep habits (hiSG study with HPB)
- Time analyses of large-scale Fitbit data to engineer sleep features (variability metrics)
- Effects of napping duration on short- and long-term cognitive performance
- Variation of inactivity and activity rhythm according to chronotype and sleep quality

Personal

- Identified melanoma from skin lesion images using ensemble of EffNets and meta-data with AUROC of 93%
- 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%
- Classify disaster tweets using NLP (ongoing)

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

Certificates
Deep Learning Specialization (Neural Networks, Optimization, Structuring ML Projects, ConvNets, Sequence Models)
AI for Medicine (Diagnosis, Prognosis, Treatment)
Data Science (Visualization, Probability)