

# JONATHAN A. CHEUNG

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## Summary

- **8 years of experience using statistics and machine learning for data-driven discoveries**
- **4 years of experience in client-facing roles leveraging analytics to deliver business solutions**
- **4 peer-reviewed publications demonstrating productivity and clear communication**

## Experience

**Data Scientist, Solutions Architect** – AI Solutions, Beyond Limits Nov '21 – Present

- Architected three projects in the industrial sector - aiding client in mapping pain points to deployed solutions
- Devised and deployed a battery management solution reducing cell testing time by 85%, from 70 to 10 days, for 18650 and 21700 batteries with 96% accuracy
- Improved inference pipeline speed by 28% and implemented commercialization efforts as the data science lead on a sand management advisor for British Petroleum
- Optimized models at scale using cloud deployment on GCP and parallelized hyper-parameter tuning with Optuna
- Lectured on and compiled material for problem discovery and high-level A.I. solution building for Aramco's Global AI Corridor with Beyond Limits and Caltech

**Data Scientist** – Demand Forecasting and Rate Design, Southern California Gas Co. Aug '20 – Oct '21

- Founding member of SoCalGas' Model Review Board - tasked with evaluating data science applications from end-to-end on dimensions of quality and cost and providing a roadmap to deployment
- Improved forecasting accuracy of daily gas consumption by 29%, translating to cost-savings of \$3-5M, via feature engineering and XGBoost for forecasting
- Developed, automated, and deployed pipelines for data ingestion, forecast, and end-point monitoring of daily gas consumption using on-prem virtual machines and PowerBI

**Doctoral Researcher** – Hires Laboratory, University of Southern California Sep '14 – Apr '20

- Produced key findings for 2 major grants, increasing funding from \$1M to \$4.5M over 4 years, by collaborating with colleagues to author 4 manuscripts in high-impact peer reviewed journals
- Resolved a decade-long debate regarding touch search strategies using predictive behavioral modeling on 16 uniquely extracted touch features – Cheung et al. 2019
- Discovered a neural representation of touch location and hypothesized a circuit model for this sensorimotor transformation using generalized linear models (GLM) – Cheung et al. 2020
- Identified a novel representation of touched object angles, a basis for shape recognition, in the brain using two-photon calcium imaging and GLMs to characterize encoding from elementary forces – Kim et al. 2020
- Saved 2000+ work hours by automating touch frame detection using TensorFlow and the pre-trained base model, ResNet50, to make fast and accurate image classification forces – Maire et al. 2023

## Skills

- Tools: Python | SQL | GCP | Heroku | Docker
- Non-Dev Tools: Figma | Miro
- Python libraries: pandas | NumPy | scikit-learn | TensorFlow | PyTorch | matplotlib | plotly | Optuna
- Supervised learning: linear and logistic regression | generalized linear models (GLM) | gradient boosting regressors | time-series forecasting | convolutional neural networks (CNNs)
- Unsupervised learning: clustering (k-means, DBSCAN, OPTICS), dimensionality reduction (PCA, t-SNE)

## Education

### Ph.D. Neuroscience

University of Southern California  
Los Angeles, CA / 2020

### B.S. Human Biology

University of California, San Diego  
San Diego, CA / 2013