JONATHAN A. CHEUNG

Los Angeles, CA 90025 • jacheung415@gmail.com • github.com/jacheung • (415) 519-2029

Summary

- **6 years of experience using machine learning tools for data-driven scientific discovery**
- **4 publications demonstrating highly productive, detail-oriented, and solution-focused nature**
- **2 contracts leveraging data to deliver business solutions**

Skills

- Tools: Python | Matlab | SQL | Spark | AWS S3
- Python libraries: pandas | NumPy | scikit-learn | SciPy | TensorFlow | PyTorch | PySpark | matplotlib | plotly
- Statistical learning tools: supervised learning | generalized linear models | decision trees | ensemble bagging and boosting | clustering | time-series forecasting | dimensionality reduction | SVMs | neural networks | CNNs | NLP

Experience

Doctoral Researcher – Hires Laboratory, University of Southern California Sept. 2014 – Present

- Crafted a data pipeline to collect, synchronize, and transform 30 million timepoints of sensor motion and neural recordings to answer the question: How does the brain represent touch?
- Performed feature engineering via applying domain expertise, time-series filtering, and physics models
- Used interpretable classification models such as generalized linear models and random forests to understand how the brain and behavioral choices are affected by touch
- Discovered a neural representation of location and hypothesized a circuit model for sensorimotor transformations
- Collaborated with colleagues to lead author 2 and co-author 2 manuscripts in high-impact peer reviewed journals
- Recruited, mentored, and trained new hires in the scientific method across 2 major projects

Data Science Contractor Aug. 2019 – Present

- Sene Studio
  - Replaced disorganized spreadsheets with an automated extract, transform, load (ETL) workflow leveraging data warehousing in AWS S3 and postgreSQL database to ensure data quality and improve accessibility
  - Used a boosted regression model to optimize fit for made-to-measure suits, reducing order returns by 38%
- Structure Research
  - Built an automated analyses pipeline for a premier data center research group resulting in standardized metrics, improved data quality, and savings of days of manual calculations
  - Productionized user-facing market reports with an interactive data visualization web application

Notable Publications, Awards, and Achievements

Kim J, **Cheung JA,** Hires SA (2020) – Behavioral and neural bases of tactile shape discrimination learning in head-fixed mice (*Neuron*)

Cheung JA, Maire P, Kim J, Lee K, Flynn G, Hires SA (2020) – Active touch remaps barrel cortex output from a representation of self-motion to object location. *(submitted; PLoS Biology)*

Cheung JA, Maire P, Kim J, Sy J, Hires SA (2019) – The behavioral basis of whisker-guided anteroposterior object localization in head-fixed mice. *(Current Biology)*

Top Presentation in Systems Neuroscience 2018 (*USC Annual Research Symposium*)

National Institute of Health Intramural Research Training Award 2013-2014 (*National Institute on Aging)*

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