SEBASTIAN C. WAZ

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EDUCATION

B.S. – Cognitive Science and Computing, UCLA (2016)
M.S. – Statistics, UC Irvine (2019)
Ph.D. – Cognitive Neuroscience, UC Irvine (2022, expected)

Coursework: generalized linear models, longitudinal data analysis, Bayesian inference, statistical machine learning, neural networks, biostatistics, PDEs, computer architecture, software construction, operating systems design

SKILLS

- R and Rmd
- Python
- R2jags
- NumPy
- MATLAB
- Keras
- ArcGIS
- scikit-learn
- C/C++
- NLTK

WORK HISTORY

GIS Analyst, Easter Island Statue Project (July 2016 – September 2017)

- Wrote Python modules for handling ETL and geospatial analysis (e.g. least-cost pathing, clustering) in ArcGIS
- Worked with a MySQL database of archaeological records (images, text, GPS coordinates) spanning 4000+ sites
- Used Natural Language Toolkit (NLTK) to identify mentions of objects of interest in historical field notes

Project Manager, UCLA Unmanned Aerial Systems (July 2014 – July 2015)

- Revived defunct student project; team competed in the 2015 SUAS Competition and is now a regular competitor
- Managed funding and advisory relations with Nextgen Aeronautics and Northrop Grumman Corporation

RESEARCH

I model human visual and auditory abilities. I collect data in moderately sized experiments (50 to 100 participants). I often use frequentist or bootstrap methods for hypothesis testing and MLE or MCMC for model fitting.

Graduate Student, Chubb-Wright Attention and Perception Lab, UC Irvine (Fall 2017 – present)

- Waz, S., Chubb, C. (2018, September). *Laterally connected neural field provides precise centroid estimates*. Poster presented at the 2nd Computational Cognitive Neuroscience (CCN) Conference in Philadelphia, PA.
- Waz, S., Chubb, C. (2019, September). *Evidence of a single neural mechanism underlying scale-sensitivity*. Poster presented at the Society for Music Perception and Cognition (SMPC) Conference in New York, NY.

Independent Researcher, Zili Liu Computational Perception Lab, UCLA (Summer 2014 – present)

- Song, X., Waz, S., & Liu, Z. (2015, May). *Boundary Extension: Insights from Signal Detection Theory*. Poster presented at the 24th Annual Psychology Undergraduate Research Conference (PURC) at UCLA.

PROJECTS

Learning melodic structure with Hidden Markov Models, Stats 235: Statistical Machine Learning (Spring 2019)

- Used simple Markov Chain models (MCs) to estimate n^{th}-order structure in melodic sequences
- Achieved 82% prediction accuracy of next-note with Hidden Markov Models (HMMs)
- Assessed sensitivity of HMMs to empirical vs. music theoretic priors and size of latent state space

Distilling play strategies from NN agents, CS 188: AI Playing Games (Spring 2016)

- Used self-organizing map (JavaML) to cluster 100,000+ game-states from AI agent runs of Super Mario
- Wrote a reinforcement learning (RL) algorithm to reduce neural network (NN) behavior to state-action strategies
- RL agent retained basic behaviors of NN model, representing strategies in human-readable format