Stephen Shepherd

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Skills

Analytics: Multidimensional Data Processing, Time/Frequency Signal Processing, Machine Learning, Deep Learning, Information Theory, Circular Statistics, Resampling and Permutation Testing

Software: MATLAB, Python, SQL, Spark, Chronux, Statistica, NBS Presentation, Psychophysics Toolbox

Experience

Rockefeller University // Research Associate **Jun 2012 – Nov 2017**

• Recorded brain activity with IRON-FRMI in communicating nonhuman-primates and analyzed using Freesurfer, FS-FAST, and MATLAB - found prominent activations in putative homologs of Broca's Area

• Programmed MATLAB to analyze inter-subject correlations in primates' gaze as a data-driven probe into the evolution of visual attention in the lineages giving rise to monkeys, apes, and humans

• Coordinated an international team of 31 scientists to explore the evolution of brains and cognition and publish *The Wiley Handbook of Evolutionary Neuroscience*

• Scientific reviewer for 25 different organizations including journals, publishers, foundations and government agencies

Princeton University // Postdoctoral Fellow **Oct 2008 – May 2012**

• Programmed MATLAB to analyze signal coherence across facial muscles using the Chronux Toolbox and determined differential patterns of muscle coordination

• Using custom MATLAB scripts, examined gaze correlation across individuals and between species, contrasting the time course and features of attention – gaining a deeper understanding of species-specific influence on attention

• Published 3 first-author reports in competitive journals including *the Proceedings of the National Academy of Science,* garnering popular coverage including in *National Geographic*

Duke University // Ph.D. Neurobiology **Aug 2002 – Dec 2008**

• Electrically recorded the first evidence of attentional mirror neurons using Gramalkyn and Plexon and analyzed temporal dynamics in MATLAB, investigating the causal role of parietal neurons in sensorimotor transformation

• Adapted circular statistics to measure attention and infer causal interactions among free-moving social groups, acquired using a prototype telemetric gaze-tracking device

• Wrote the *Skriatok* MATLAB GUI for analyzing telemetric video recording in naturalistic environments

• Publications include a sole-author review cited 150+ times, multiple first-author research reports and book chapters

Education

The Data Incubator // Data Science **Apr 2019**

Topics: *Scientific and statistical programming; Python, SQL, Spark; Data wrangling and visualization; ML, NLP, Tensorflow, Keras*

Duke University // Ph.D. Neurobiology **Dec 2008**

Thesis: *Neuroethology of Social Attention in Primates*

Caltech // B.S. Biology **Jun 2000**