Erik J. Peterson, PhD

E-mail: erik.exists@gmail.com Website: robotpuggle.com Github: @parenthetical-e

In summary

Research leader. Excellent scientist. Thoughtful engineer.

Experience

Phinyx - New York, NY
Principle Scientist **2024 - Current**
Head of research at Phinyx. Focus on program synthesis and automated programming for scientific computing applications.

Pasteur Labs - New York, NY
Advanced Projects Lead (final position) **2022 - 2024**
Team lead for advanced projects in casual artificial intelligence focused on industrial developments. Co-lead scientific machine learning research. Lead developer of Pasteur's scientific machine learning library (neural operators, graph neural networks, etc; >30 models)

Carnegie Mellon University - Pittsburgh, PA
Research Fellow (Scientist) **2019 - 2022**
Developed mathematical accounts of curiosity in reinforcement learning and multi-agent systems which reframed and answered a key open question in decision science. Established a new theoretical upper limit for biological computation.

Kernel - Los Angeles, CA
Senior Scientist **2017 - 2018**
Lead a team of 3 who developed a model for complex spatio-temporal electrical field shaping for use in brain computer interfaces and deep brain stimulation. This project blended biophysical models with deep neural networks and led to a 400,000 fold speed-up – a key requirement for real-time use.

U.C. San Diego - San Diego, CA
Postdoctoral Fellow **2014 - 2017**
Conducted theoretical and computational research on the optimal coding properties of neural oscillations. Co-lead development of a python tool to analyze electrophysiological time-series which has found widespread use in the neuroscience community and been downloaded >275,000 times.

Colorado State University - Fort Collins, CO
Graduate Research Assistant (Seger Lab) **2006 - 2012**

Biosearch Technologies - Novato, CA
Research Assistant II **2004 - 2006**
Optimization of high-throughput chemistry for DNA synthesis; reporter gene development (stability and kinetics).

Education

Colorado State University (Fort Collins) - Ph.D, Psychology; Masters, Psychology.

California Polytechnic State University (San Luis Obispo, CA) – B.S., Chemistry; B.S., Biochemistry; Minor, Philosophy.

Programming

Developed production-ready machine learning models in modern frameworks (jax, torch). Expert scientific programmer (python). Fluent in standard development tools (git, docker, etc).

Press/Talks

Brain's 'Background Noise' May Hold Clues to Persistent Mysteries, *Quanta Magazine*, 2021.
Build Your Own Brainwaves, *Nerd Nite*, Los Angeles, Feb 2018.
In Theory You're Paying Attention, *Ignite*, San Diego, Nov 2016.

Select publications.

Total citations: >2,000. h-index: 14.

Peterson EJ & Lavin A, Physical Computing for Materials Acceleration Platforms, *Matter* 5, 3586-3596 (2022).

Donoghue T*, Haller M*, **Peterson EJ***, et al, Parameterizing Neural Power Spectra into Periodic and Aperiodic Components, *Nature Neuroscience* 23 1655-1665 (2020).