

## Erik J. Peterson, PhD

---

	E-mail: <a href="mailto:erik.exists@gmail.com">erik.exists@gmail.com</a>	Website: <a href="http://robotpuggle.com">robotpuggle.com</a>	Github: <a href="https://github.com/parenthetical-e">@parenthetical-e</a>
IN SUMMARY	As a scientist I've worked and published in 10 fields, including scientific machine learning, causal analysis, chemistry, biochemistry, nanotechnology, surface science, computational neuroscience, cognitive science, reinforcement learning. As an engineer I write production-grade code and make clean architectures. And as a fallible human I once spilled \$200k in purified product on the floor of my lab. <b>Excellent scientist, thoughtful engineer, and I learn from my mistakes.</b>		
RELEVANT EXPERIENCE	<b>Phinyx</b> - Providence, RI <i>Principle Scientist</i> <span style="float: right;"><b>2024 - Current</b></span> Head of research, automated programming for scientific computing. Led a total rewrite of the core library for NLP-driven program synthesis to make it work with any library or language. Did new research on chain-of-thought methods to scale Phinyx's technology to large complex simulations. <b>Pasteur Labs</b> - New York, NY <i>Staff Scientist, Advanced Projects Lead</i> (final position) <span style="float: right;"><b>2022 - 2024</b></span> Led projects in causal AI and scientific machine learning. Focus was bridging academic research with industrial demands. Wrote a comprehensive scientific ML library (>30 networks). Did new research in "simulation intelligence" methods for analog computation with physical systems. <b>Carnegie Mellon University</b> - Pittsburgh, PA <i>Research Fellow</i> <span style="float: right;"><b>2019 - 2022</b></span> Did new research on mathematical models of curiosity in reinforcement learning; established a new theoretical upper limit for biological computation. <b>Kernel</b> - Los Angeles, CA <i>Senior Scientist</i> <span style="float: right;"><b>2017 - 2018</b></span> Led team developing model for complex spatio-temporal electrical field shaping, achieving 400,000-fold speed-up for real-time use in brain-computer interfaces. <b>U.C. San Diego</b> - San Diego, CA <i>Postdoctoral Fellow</i> <span style="float: right;"><b>2014 - 2017</b></span> Did new research on optimal coding in neural oscillations. Co-developed new software to analyze electrophysiological time-series that is widely used in neuroscience (downloaded >275,000 times). <b>Colorado State University</b> - Fort Collins, CO <i>Graduate Research Assistant</i> <span style="float: right;"><b>2006 - 2012</b></span> Did new research in human reinforcement learning. <i>Thesis</i> : Rewards are categories? <b>Biosearch Technologies</b> - Novato, CA <i>Research Assistant II</i> <span style="float: right;"><b>2004 - 2006</b></span> Optimized high-throughput chemistry for DNA synthesis; developed reporter genes.		
EDUCATION	<b>Colorado State University</b> (Fort Collins) - Ph.D, Psychology; Masters, Psychology. <b>California Polytechnic State University</b> (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).		
SELECT PUBLICATIONS.	TOTAL CITATIONS: >2,000. H-INDEX: 14. <b>Peterson EJ</b> & Lavin A, Physical Computing for Materials Acceleration Platforms, <i>Matter</i> 5, 3586-3596 (2022). Lavin A, et al, Simulation Intelligence: Towards a New Generation of Scientific Methods, <i>arXiv</i> 2112.03235 (2021). Donoghue T*, Haller M*, <b>Peterson EJ*</b> , et al, Parameterizing Neural Power Spectra into Periodic and Aperiodic Components, <i>Nature Neuroscience</i> 23 1655-1665 (2020).		