Steven Durr

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EXPERIENCE

Supervised Program for Alignment Research (SPAR) Remote
Research Mentee under Andy Arditi Spring 2025 (Part-Time)

- Conducting supervised research on interpretability in reasoning models.

STR Boston, MA
Senior Scientist May 2023 - Present

- Researching and implementing deep learning for signal extraction and classification on complex time-series data.
- Optimized model architecture via extensive architecture and hyperparameter searches, significantly improving performance on large-scale datasets.
- Developed robust classifiers using semi-supervised techniques, improving generalization despite sparse labels.

Google Venice / Mountain View, CA
Software Engineering Intern
Google Quantum AI Jun - Sep 2021

- Designed and executed optimization experiments for quantum error correction (surface code calibration).

Google My Business Jun - Sep 2018

- Applied transformers, RNNs and clustering algorithms to extract structured insights from large, noisy datasets.

UCLA LA, CA
Chakravarty Group Member 2017 - 2022

- Developed transformer-based models to replicate quantum ground states, outperforming traditional methods on highly entangled systems.
- Used unsupervised clustering techniques to identify nonequilibrium phases of matter. (Published as *Unsupervised learning eigenstate phases of matter*)

Research with Professor Shenshen Wang 2019 - 2022

- Developed analytical framework for GAN dynamics, characterizing phase transitions. (work published in *Physical Review X* as *Effective Dynamics of Generative Adversarial Networks*)
- Studied information dynamics and stochastic optimal control in evolutionary landscapes.

Cornell University Ithaca, NY
Perelstein Group Research Assistant May 2015 - May 2016

- Implemented custom neural networks (fully connected and convolutional) for boosted top quark classification, later migrating models to TensorFlow once it was released.

EDUCATION

University of California, Los Angeles LA, CA
PhD in Theoretical Condensed Matter Physics Sep 2016 - Jun 2022
Dissertation: *Aspects of Many-Body Physics and Machine Learning*

Cornell University Ithaca, NY
Bachelor of Arts in Physics, Mathematics (Double Major) Aug 2012 - May 2016

SKILLS & CREDENTIALS

Programming: Python (10+ years), PyTorch, TensorFlow, NumPy, SciPy, Pandas, Git

Mathematical & Quantitative Skills: Stochastic processes, Bayesian inference, time-series modeling, statistical learning theory, signal processing, numerical optimization

Selected Coursework: Princeton ML Theory Summer School ('21), Cornell MATH4330: Honors Linear Algebra

Clearance: Active TS/SCI