Dustin Lee Enyeart

Mathematics | Physics | Programming

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Summary

I have a broad knowledge of mathematics, physics and programming. My doctoral dissertation is on differential equations and neural networks. I am seeking a challenging job in technology in a collaborative and innovative environment.

Education

Bachelor's degree in Mathematics, University of New Mexico (3.57 GPA)

Master's degree in Mathematics, Purdue University (4.00 GPA)

Doctorate degree in Mathematics, Purdue University (3.84 GPA) (December 2024)

Work Experience

Teaching Assistant for Mathematics at Purdue University (2017-present)

Technical Skills

Programming Languages: Python, C/C++

Scientific Computing: Finite-Difference Method, Finite-Element Method, Numerical Linear Algebra

Physical Modeling: Computational Electromagnetism, Molecular Dynamics, Density Functional Theory

Machine Learning: Scientific Machine Learning, Neural Networks, PyTorch, Torch Geometric

Data Science: Probability, Statistics, Data Analysis

Parallel Computing: Threads, MPI, CUDA

Software Development: GNU/Linux, Bash, Git, GDB, Make/CMake

Technical Writing: LaTeX, Markdown

Relevant Coursework

Besides the mathematics curricula for my degrees, I have taken additional graduate-level courses on a variety of topics, such as physical modeling, computer science, artificial intelligence, material science engineering, nuclear engineering, electrical engineering and semiconductor fabrication. Furthermore, the majority of my studies have been done independently of my schoolwork.

Selected Projects

Loss Functions for Koopman Architecture: Compared common and novel loss functions for the Koopman architecture on seven different differential equations using Python and PyTorch

Local Embedding for Koopman Architecture: Developed a novel local embedding for the Koopman architecture to solve PDEs using Python and PyTorch

Graph Neural Network for Koopman Architecture: Developed a novel graph-neural-network local embedding for the Koopman architecture to solve PDEs using Python, PyTorch and Torch Geometric

X-ray Tube Simulation: Modeled an x-ray tube using C++ and Geant4

Wiggler Simulation: Computed photons and their spectrum from electrons in a wiggler using C++ and Geant4

Undulator Simulation: Computed electromagnetic waves and their spectrum from an electron in an undulator using Python

Van-der-Waals Source Simulation: Computed electromagnetic waves and their spectrum from an electron in a van-der-Waals material using Python where the electronic structure of material was computed using ASE and GPAW

Bias Detection in Wikipedia: Implemented natural language processing methods for bias detection using Python and PyTorch

ODE Schemes Comparison: Compared finite-difference schemes for time-dependent ODEs using Julia