Sean Lewis

Developer & Scientist

EDUCATION

Ph.D. - Physics
Computational Astrophysics
Drexel University, 2023

Masters - Physics
Drexel University, 2019

Bachelors - Physics
California Polytechnic State University, 2016

SKILLS

Programming

- Python (numpy, pandas, scikit-learn, pytorch)
- SQL/PostgreSQL
- MongoDB
- Fortran90, C/C++
- MPI/OpenMPI

Technical

- Machine Learning
- HPC Systems
- Fluid Dynamics
- Quantitative Design
- Technical Writing

CONTACTS

sean.phys@gmail.com
(408) 470-0668
slewis.wiki

EXPERIENCE

MACHINE LEARNING ENGINEER
PRIMEX PROCESS SPECIALISTS INC | Sept 2024 - Present

- Built production deployments of machine learning forecasting models for energy futures markets via established Azure resources.
- Worked directly with customers in the utility-scale power generation market to build custom products to analyze and report power plant anomaly detection.
- Collaborated with internal subject matter experts to discover, analyze, and communicate value add prospects and avenues for optimization.

SOFTWARE ENGINEER | DATA SCIENTIST
NEAR-MISS MANAGEMENT LLC | Sept 2023 - Aug 2024

- Developed a flagship machine learning risk management product employing real-time predictive analysis, anomaly detection, and custom API interfaces.
- Eliminated critical data inconsistencies in SQL procedures, resulting in a 25% reduction in model processing time.
- Designed novel time series data ETL machine learning pipelines with over 30% increased efficiency.
- Wrote technical manuals for several internal team-wide procedures including detailing the structure of novel data pipelines and remote data access and storage procedures.

SOFTWARE RESEARCH SCIENTIST
DREXEL UNIVERSITY | Sept 2019 - Sept 2023

- Led the development of a revolutionary fluid dynamics module employing custom high performance computing algorithms via low-level MPI libraries.
- Optimized radiative transfer algorithms with matrix vectorization, improving computation time by over 10x.
- Mentored an international team of graduate students and led, wrote, and digitized technical training sessions in graduate-level data science and machine learning.
- Taught university-level supplementary courses in topics including electromagnetic waves, circuit design, and dynamics.

PROJECTS & ACHIEVEMENTS

PROJECTS LED

- **ArcDRA:** A flagship time series risk management SaaS product utilizing machine learning libraries (PyTorch) to provide real-time anomaly detection.
- **VorAMR:** A first-of-its-kind Fortran-based HPC module unifying data from multiphysics software suites providing unique research insights in astrophysics. Currently used by researchers at the American Museum of Natural History.

RESEARCH & PUBLICATIONS

- First-author publication in The Astrophysical Journal.
- Presented research at the American Astronomical Society conferences in 2019, 2020, 2021, and 2023.
- Managed and secured a National Science Foundation grant as co-PI, supporting cutting-edge computational research.

PROFESSIONAL DEVELOPMENT

- Neural Networks and Deep Learning - DeepLearning.AI
- Bayesian Statistics: From Concept to Data Analysis - UCSC