Columbia, SC
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Daniel A. Gleaves

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https://github.com/dagleaves

Education

Columbia, SC **University of South Carolina** **Aug 2020 – May 2024**

- B.S. in Computer Science. GPA: 3.4.
- Coursework: Intro. to Deep Neural Networks; Linear Algebra; Operating Systems; Data Structures & Algorithms; Programming Language Structures; Comp. Architecture; Software Engineering; Networking

Work Experience

Undergraduate Researcher **Machine Learning and Evolution Laboratory** **Jan 2021 – Mar 2023**

Columbia, SC

- Reviewed literature to identify a new method of screening inorganic material structures for stability
- Designed and programmed a novel graph neural network-based semi-supervised machine learning model framework for material synthesizability and formation energy prediction
- Cleaned and utilized large-scale datasets containing millions of material structures
- Validated model performance using hold-out and k-fold cross validation methods
- Co-authored a research paper presenting our state-of-the-art results as the primary author

Projects

Image Classification Toolbox

`https://github.com/dagleaves/VisionNETs`

- Implemented popular image classification models: GoogLeNet, ResNet50, VGG16 in PyTorch
- Analyzed small-image datasets: MNIST, FashionMNIST, CIFAR-10, and CIFAR-100 for normalization
- Utilized distributed training techniques using the university high performance computing cluster with Slurm
- Evaluated and compared architecture performance differences
- Prepared a survey manuscript detailing key results for small-sized image classification tasks

RecLLM

`https://github.com/dagleaves/RecLLM`

- Combined nascent vector database technology with large language models (LLMs) for application to recommender systems using LangChain and Weaviate
- Designed a novel recommendation framework that exploits LLM summarization capabilities to extract key user interests
- Constructed a vector database of book metadata for similarity search using the Google Books API

Honors & Awards

- University of South Carolina Honors College — Aug 2020
- South Carolina Palmetto Fellows — Aug 2020
- Carter Bays Computer Science Fellowship — Aug 2021
- Science Undergraduate Research Fellowship - Research Grant — May 2021
- Magellan Scholar Award - Research Grant — May 2021

Publications

- Daniel Gleaves, Nihang Fu, Edirisuriya M. Dilanga Siriwardane, Yong Zhao, and Jianjun Hu. Materials synthesizability and stability prediction using a semi-supervised teacher-student dual neural network. *Digital Discovery*, 2:377–391, 2023

Skills & Interests

- Technical: Python, PyTorch, PyTorch Lightning, Git, Slurm, scrum, pandas, numpy, sklearn
- Operating Systems: Windows, Mac OS X, Linux
- Research Interests: Machine learning, LLMs, Computer vision, Recommender Systems