Ian Snyder

Machine Learning Engineer
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EDUCATION

Pittsburgh, PA **University of Pittsburgh** **Aug 2019- May 2023**

Major | Computational Biology , B.S GPA: 3.2
Minor | Applied Statistics
Programming Coursework: Modeling and Simulations, Data Science, Advanced Algorithms, Data Structures, Discrete Mathmatics
Statistics Coursework: Applied Regression, Nonparametric Statistics, Categorical Data Analysis, Applied Sampling

TECHNICAL SKILLS

Languages: (*advanced*): Python, Java (*proficient*): C++, R (*familiar*): Javascript, Bash
Tools: Git, Jupyter, CUDA, Slurm, PyTorch, Tensorflow, Pandas, NumPy, Hugging Face
Database & Cloud: MySQL, SQLite, Neo4j Cypher, AWS Elastic Beanstalk
Machine Learning: Generative modeling, Sequence modeling, Convolutional Neural Networks, Transformers

EXPERIENCE

Machine Learning Researcher | Carnegie Mellon-UPMC De Novo Drug Design — Oct 2019 - Sep 2020

Department of Computational & Systems Biology, Koes Group Directed Research **Python | CUDA | Slurm**

- Engineered advanced deep learning solutions for cancer treatment using GNINA frameworks, focusing on **3D Convolutional Neural Networks (CNNs)** for high-accuracy, low RMSD pose predictions in structure-based drug design.
- **Pioneered the application of ensemble modeling** to mitigate performance variability, substantiated through rigorous investigations.
- Employed CUDA and Slurm for **highly efficient parallel training of an expansive ensemble of dense CNN models** , achieving scalability up to 20 models.
- Conducted meticulous cross-validation and data visualization to **optimize the cost-performance index** , resulting in a statistically significant performance boost.
- Instrumental in the **creation of the research group's pinnacle model** , which achieved a 10% reduction in RMSE through a quintet ensemble, earning co-authorship in a **peer-reviewed publication with over 50 citations.**

Publication : "Three-Dimensional Convolutional Neural Networks and a Cross-Docked Data Set for Structure-Based Drug Design," Journal of Chemical Information and Modeling, 2020

PROJECTS

ScholarlyRecommender Cloud App and Newsletter — Git | API | Python | Pandas

- Developed ScholarlyRecommender, an **End2End automated system that curates personalized feeds of the latest academic publications** . Built on a **scalable architecture** , the system is designed to evolve into a self-improving newsletter service
- Fully integrated an **intelligent system that scrapes, structures, ranks, formats and delivers a feed of papers directly to a clients email with a single, automatically configured API call.**
- Implemented an **intuitive, user-centric, Streamlit Cloud API** that abstracts algorithmic complexity, offering users **a secure, accessible and reliable platform for customization without any download or code**
- Established a comprehensive roadmap for future enhancements, fostering an open-source community by providing clear guidelines for contributions, **creating a collaborative development environment** distributed under Apache License 2.0
- **Try it yourself** : scholarlyrecommender.streamlit.app

Snake Game Intelligent Agent App — Python | PyTorch | PyGame | NumPy

- Engineered an advanced Snake Game Application utilizing Pygame, featuring a **sophisticated Intelligent Agent powered by Deep Q-Learning** through the PyTorch framework
- Crafted an engaging and interactive experience for users, offering multiple difficulty levels, AI gameplay demonstrations, and the opportunity to train, visualize, and save their own models, enhancing user engagement and understanding
- Seamlessly **integrated and abstracted the application's full suite of features within an intuitive, custom-built GUI** , ensuring effortless accessibility and an exceptional user experience for clients
- **Source & Demo** : github.com/iansnyder333/ai-game

CERTIFICATIONS

Deep Learning Specialization | *DeepLearning.AI* **Jul 2023**
Machine Learning Specialization | *Stanford University* **Jun 2023**