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EDUCATION

University of Illinois at Urbana-Champaign

B.S. in Engineering Physics, Computational Science and Engineering Concentration, Computer Science Minor

EXPERIENCE

National Center of Supercomputing Applications

Scientific Software Engineering Intern

- Engineered parallelized visualization pipeline using VisIT Visualization across distributed cloud computing infrastructure, processing 800+ TBs of cosmological simulation data and communicating observational signatures in 14+ peer-reviewed publications
- Implemented GPU acceleration into elliptical PDE solvers in C++ and Python, reducing initial data compute times from 168 hours to 45 minutes (2000 % Speed up) through OpenACC and OpenMP parallelization
- Developed a low-code GUI application enabling efficient utilization of open-source models on cloud-computing infrastructure, streamlining biophysicists' workflow for computational experimentation and saving an estimated 20+ developer hours per week
- Implemented an automated software support system by integrating Slack with GitHub, reducing response time for bug fixes and feature requests by 40% and maintaining seamless software updates for 18+ months

John Deere

Data Science Intern

- Automated end-to-end CI/CD pipeline using Airflow and Spark, processing 1.2TB of IoT sensor data daily with 99.4% schema validation accuracy
- Engineered multimodal CNN-RNN fusion model (PyTorch) combining LiDAR point clouds and RGB imagery, achieving 0.85 F1 score and sub-300 ms response time on trench condition classification, reducing false positives in crop health alerts by 38%

Flexday Al

February 2022 - August 2022 & May 2023 - August 2023

Machine Learning Engineering Intern

- Engineered application that integrates YAML configuration files to automate data science workflows on AWS and Azure, collaborating with executives to create intuitive ML model prototyping interface
- Developed embedded object-tracking model, reducing size by 53% through Q-HyVIT and INT8 quantization, delivering 0.81 F1 score, 98.7% up-time, and sub-150 ms response time on resource-constrained hardware
- Designed and deployed customer service chatbot using TF-IDF classification, effectively directing 200+ conference attendees to relevant FAQs and company resources

PROJECTS

ModelMat:

AutoDoc CLI Tool:

Jan 2025 - present

- Developed CLI tool to reformat python source code through AST-based parsing to generate functional doc-strings and PEP8-compliant type hints in 500+ functions across 15+ repositories
- Deployed as a Git pre-commit hook and CI/CD pipeline step within 4+ open source repositories, preventing un-formatted code merges in 20+ pull requests

Jan 2025 - present

 Developing PyPi-Python library implementing custom metrics with Dask parallelization for Tabular and Deep Learning Models, integrating SHAP value computation through PyTorch hooks to enabling feature importance visualization for model performance

TECHNICAL SKILLS

Languages: Python, C++, FORTRAN, Julia, GO, Bash, SLURM, SQL, Rust, C, Java, JavaScript, CUDA, OpenCL Relevant Frameworks/Technologies: MLflow, ONNX Runtime, Docker/Kubernetes, PyTorch, XGBoost, Optuna, Omega-Conf, Apache Spark, Airflow, AWS S3/Glue, Parquet

August 2022 - Present

May 2024 - August 2024

Graduation: May 2025