Christopher Lee

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Education

Purdue University West Lafayette, Indiana
Bachelor of Science in Computer Science *May 2027*

- **Coursework:** Data Structures and Algorithms, Analysis of Algorithms, AI, Systems and C Programming
- **Awards:** First Place at Purdue Hello World Hackathon, Dean's List, Semester Honors

Experience

Undergraduate Research Assistant Aug 2025 – Present
Purdue University *West Lafayette, Indiana*

- Developing ensemble framework combining LSTM time-series models in PyTorch with regression and Random Forest predictors to model corn yield impacts from isolated droughts, advised by Professor Pratishtha Poudel.
- Engineering scalable pipelines with Pandas, NumPy, and Scikit-learn to clean, merge, and align multi-source environmental and crop datasets.
- Applying SHAP and Random Forest feature importance to interpret drivers of yield variability and benchmark ensemble predictions against traditional crop models for greater robustness.

Software Engineer Intern May 2025 – Aug 2025
Siemens Digital Industries Software *Fremont, California*

- Resolved 25+ major test case failures, increasing pass rates by 30% and strengthening regression pipelines for Calibre SONR, Siemens' EDA tool for full-chip design verification.
- Fixed 10 production-level bugs in SONR's ML pipeline, increasing reliability of chip hotspot prediction, feature extraction, and pattern clustering in customer deployments.
- Scaled end-to-end validation of SONR's ML infrastructure by 48% through the development of 20+ model-level test cases, increasing coverage and robustness of defect prediction modules.
- Boosted SONR's LightGBM regression model accuracy to 95% by implementing automated hyperparameter tuning with Optuna, enhancing generalization across diverse IC layouts.
- Authored 5 technical reports outlining root cause investigations, code-level resolutions, and regression setup guidelines, driving long-term codebase maintainability.

Data Science Researcher Aug 2024 – May 2025
Sandia National Laboratories - Purdue Data Mine *West Lafayette, Indiana*

- Built a machine learning model in Python to predict the destination of flights from partial geospatial trajectory data.
- Automated model evaluation using Pandas for structured data transformation, Tracktable for geospatial analysis, and Matplotlib to visualize accuracy trends, reducing end-to-end testing time by 40%.
- Evaluated 1.9 million flight trajectories while developing 30 test cases to benchmark model performance, achieving a 17.7% improvement in model prediction accuracy.
- Delivered project results to Sandia's technical staff at the 2025 Purdue Data Mine Corporate Partners Symposium.

Undergraduate Student Researcher Jan 2024 – May 2024
Purdue Vertically Integrated Projects *West Lafayette, Indiana*

- Developed a FCNN using Python and NumPy with Professor Edward Delp to classify traffic signs in real-time.
- Achieved 96% accuracy by optimizing propagation algorithms, applying Sobel edge detection for feature extraction, and implementing Leaky ReLU activation for improved non-linearity.
- Integrated model into an Android app using Python Pickle serialization enabling seamless classification.
- Presented research and project at the 2024 Purdue Undergraduate Research Conference to 20+ faculty and staff.

Software Engineer Jan 2024 – May 2024
Purdue University College of Engineering *West Lafayette, Indiana*

- Modernized a cross-platform React Native app by resolving dependency issues and boosting database performance 20% via SQLite indexing and Python automation for JSON data handling.
- Led triage and resolution of 10+ critical bugs, enhancing app stability, performance, and user experience.

Technical Skills

Languages: Python, C/C++, Java, Swift, x86-64 Assembly
Technologies: Linux, Shell Scripting, PyTorch, TensorFlow, SQL, Android/iOS SDK, Git, JUnit Testing
Expertise: AI/ML, Systems Programming, Data Science, Technical Communication, Agile Methodologies