

# Daniel Lines

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## Education

### Cornell University, College of Engineering

*Bachelor of Science in Computer Science (GPA: 3.67)*

Expected May 2025

Ithaca, NY

- **Relevant Coursework:** Data Structures and Algorithms, Robotics, Machine Learning, Computer Vision, Optimization

## Experience

### Applied Physics Laboratory, University of Washington

Seattle, WA

*Computer Vision Engineer Intern*

May 2024 – August 2024

- Developed mapping and localization algorithms for autonomous BlueROV wireless charging and data transfer
- Implemented SLAM using GTSAM and localization utilizing trilateration from camera input and fiducial markers
- Built robust ROS pipelines and RViz renderings with custom launch files for ROV spatial awareness and navigation
- Trained a DeepSDF model to predict unseen surfaces of objects, enhancing robotic manipulation accuracy

### Marquardt Group

Syracuse, NY

*Software Engineer Intern*

January 2024

- Designed and built a production database with SQL and Python to track assembly line production and efficiency
- Programmed a data entry interface and an automated SQL query generator to facilitate user-database interaction
- Handled API requests and parsed JSON data, enabling effective and reliable communication between AGV systems
- Deployed robust, preventative fault-checking AGV mechanisms in Python, which lowered down time by 80%

*Automation Engineer Intern*

May 2023 – August 2023

- Engineered software and hardware solutions for an Automated Guided Vehicle (AGV) capable of auto drop-off
- Leveraged Python to schedule API calls to achieve full AGV autonomy, decreasing startup/shutdown time by 50%
- Configured proximity sensor and seamlessly integrated it into the AGV's network, reducing failure rate to under 1%
- Authored multiple proposals on automation, effecting over 2 million dollars of autonomously transported goods

### Cornell University, College of Computer and Information Science

Ithaca, NY

*Teaching Assistant, Computer System Organization and Programming*

January 2024 – Present

- Assisted in the development of course content, assignments, and exams in collaboration with the professor
- Facilitated learning of C and assembly code with explanations, hands-on examples, and one-on-one assistance
- Supported the grading of assignments, with constructive feedback to help students master course material
- Lead weekly office hours and online support, addressing students' questions to enhance understanding and learning

## Projects

### Signlingo | Python, Pytorch, YOLO

- Developed a platform for learning sign language, providing real-time feedback based on the signs users performed
- Utilized PyTorch and YOLO models for sign language recognition, achieving 93% accuracy in identifying sign letters
- Experimented with varying numbers of convolutional layers, fully connected layers, and max pooling configurations
- Augmented training data to increase the dataset size by 4x, improving the model's test accuracy and robustness

### Diabetes Readmission Predictor | Python, Scikit-Learn, Pandas

- Implemented a predictive model for diabetes readmission, using patient data to forecast hospital readmission
- Tested various machine learning models, including logistic regression, kernel SVM (RBF), and random forest
- Tuned hyperparameters for logistic regression using grid search and cross-validation to improve prediction accuracy
- Performed comprehensive data analysis to identify the best features for predicting diabetes readmission

### OCaml Gambit | OCaml, HTML, Dune, Makefile

- Built a chess engine with comprehensive game status checking, including check, checkmate, and stalemate
- Conducted extensive testing to ensure reliability and correctness of game logic, with over 90% code coverage
- Formulated modules for demonstration, testing, and multiplayer to enhance the engine's usability and versatility
- Prioritized code readability, documentation, encapsulation, to facilitate ease of collaboration among team members

## Technical Skills

**Languages:** Python, Java, OCaml, C/C++, Julia, Javascript, HTML/CSS

**Technologies:** ROS, Docker, SQL, PyTorch, NumPy, Git, Pandas, Flask, REST APIs, Linux