Gina Philipose

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Education (Accelerated BS and MS Program)

M.S. Computer Science, Specialization in Data Science **Mar 2025 – Mar 2027 (Projected)**
Seattle University *Seattle, WA*

B.S. Computer Engineering & Computer Science (Dual-Major) **Sep 2023 – Dec 2026 (Projected)**
Minor in Electrical Engineering — Seattle University *Seattle, WA*

Experience

Embedded Soil Moisture Sensor Development **Sept 2025 – Jun 2026 (Projected)**
Seattle University *Seattle, WA*

- Collaborating within a 5-student interdisciplinary team (3 Computer Science, 2 Computer Engineering) and 2 professors to develop an ML model for spatial soil moisture estimation in areas without physical sensor coverage
- Building 2-inch embedded ground sensors to collect validation data for supervised model training and calibration
- Developing a dashboard to display packets from deployed sensors and visualization 1000+ data points via a graph.

Computational Biology Education Simulations **Jun 2024 – Aug 2024**
Seattle University *Seattle, WA*

- Collaborated in a 5-student interdisciplinary team (3 CS and 2 biology) and 2 professors to develop web-based biology simulations for classroom instruction using Python, JavaScript, HTML, and CSS
- Managed source control and collaborative workflows using GitHub and VSCode
- Website: bio-sims.github.io

Projects

Capstone Project: NASA Psyche Mission Rover | *Python, Arduino C* **Sept 2025 – Jun 2026 (Projected)**

- Working in a 4-member multidisciplinary team (1 Computer, 1 Electrical, and 2 Mechanical) to design and build a terrain-traversing rover utilizing ML-based path optimization for adaptive terrain navigation
- Using an Arduino for real-time signal processing with RPLiDAR integration and an NVIDIA Jetson Nano for onboard computation

Seattle Crime Spatial Prediction | *Python, Pandas, Scikit-Learn, Matplotlib, Seaborn, (VSCode, Google Colab)*

- Analyzed historical Seattle Police Department crime data to investigate correlations between crime type, time, and geographic location
- Trained Random Forest, Naïve Bayes, and KNN models on 1,000,000+ crime records to predict neighborhood locations from partial crime reports
- Applied data preprocessing, feature engineering, visualization, and supervised learning techniques to identify high-risk spatial-temporal patterns
- Insights aimed at supporting faster emergency response and informing community safety strategies

QKD Simulations | *HTML, CSS, JavaScript (VSCode)*

- Developed a simulation demonstrating the BB84 quantum key distribution protocol
- Visualized quantum state preparation, measurement, basis reconciliation, and key agreement processes
- Illustrated the effects of eavesdropping on key agreement using protocol-level behavior
- Referenced and validated implementation against established academic sources

Technical Skills

Programming: Python, C++, C#, JavaScript
Embedded & Systems: Linux, POSIX Threads, TCP/IP, Arduino, Raspberry Pi, NVIDIA Jetson Nano, ESP32
Machine Learning: PyTorch, TensorFlow, Scikit-Learn, Deep Learning (CNNs, RNNs, LSTMs, GRUs), Pandas, NumPy
Web & Databases: HTML, CSS, PHP, SQL (MySQL)
Tools: Git, Jupyter Notebook, VS Code
Hardware: KiCAD, LTSpice, DE1-SoC, MultiSim

Extracurricular & Interests

- Member: Society of Women Engineers (SWE), Girls Who Code, IEEE, IEEE-HKN
- Interests: Data Communication Networks, AI, Machine Learning, Embedded Systems, Cloud Computing