D A V I D A . M U R P H Y
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Greater Philadelphia Area
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SUMMARY

Enthusiastic Computer Science graduate with strong proficiency **in Python, Java, and C++.** Skilled **in problem-solving, logical thinking, and collaborative teamwork**. Driven by a passion for innovation and continuous learning, I thrive in dynamic environments, **valuing challenges and feedback** as opportunities for **growth**. Eager to contribute my skills to valuable projects and make a lasting impact in the tech industry.

EDUCATION

B.S. Computer Science **August 2022 – May 2025**
The Pennsylvania State University

TECHNICAL SKILLS

Languages: Python, C++, Rust, Git, Java, JavaScript, C#, Lua, Swift, SQL, HTML, CSS, Go, Kotlin
Frameworks & Libraries: Apriltags**,** React, FastAPI, ROS2, Redis, MongoDB
Developer Tools and Environments: Neovim, GitHub, Linux, Visual Studio, VS Code, PyCharm, SQL Server Management Studio

EXPERIENCE

Contracted Software Engineer, Chestnut Hill College **January 2022 – February 2023**
Philadelphia, PA

- Collaborated on **process automation initiatives** to improve **data accuracy** and quality assurance, directly contributing to stronger **data integrity** across systems.
- Performed regular **data audits** and implemented **data-cleaning scripts** to identify and resolve **duplicates**, **anomalies**, and **inconsistencies**, enhancing system reliability.
- Leveraged **Microsoft Excel**, along with **scripting tools (Python, VBA, PowerShell)**, to **extract, transform, and load** (ETL) large datasets with a focus on **efficiency and scalability.**

Integration Services Engineer Intern, IT Solutions Consulting Inc. **May 2022 – January 2023**
Fort Washington, PA

- Built and configured **DataVaults (DVs)** to support **secure, high-performance** data storage solutions for diverse client needs.
- Authored clear and actionable **Standard Operating Procedures (SOPs)** for tasks such as **firewall software upgrades**, **switch configurations**, and **DV assembly**, enhancing consistency and compliance.
- Configured and optimized **network switches (Layer 2/3)** to ensure **efficient data flow** and **minimal downtime** across client environments.
- Utilized **ConnectWise** and **Kaseya** for **endpoint management**, **remote monitoring**, and **service ticketing**, streamlining operations and **improving incident response times.**

PROJECTS

TurtleBot Swarm Intelligence Sponsored by Lockheed Martin (Robotics) **January 2025 – May 2025**
Contributed to a real-time swarm system using TurtleBots and Raspberry Pi for military-style search and rescue operations:

- Implemented **Particle Swarm Optimization (PSO)** for decentralized swarm coordination and multi-target search efficiency.
- Designed and deployed a modular control system in **Python** using **ROS 2 Jazzy**, enabling inter-robot communication via a publish-subscribe model.

- Integrated sensors including **LiDAR**, **Vex Ultrasonic**, and **YOLOv8 Nano** (via **ONNX**) for real-time object detection, obstacle avoidance, and target recognition.
- Used **AprilTags** to enable **relative positioning**, robot identification, and alignment to a global reference frame for swarm coherence.
- Engineered reliable messaging and distributed logging using **Redis** (real-time broadcast coordination) and **MongoDB** (centralized mission state tracking).
- Validated system behavior through extensive simulation in Gazebo and unit-tested ROS2 agents with mocked hardware inputs to ensure robustness.

DecibelDetect – Urban Noise Mapping App **August 2024 — December 2024**
Designed a web platform that visualizes urban noise pollution using user-submitted decibel data:

- Built an interactive **noise heatmap** with **real-time data visualization**.
- Developed the frontend in **React**, allowing users to submit noise readings with location and timestamps.
- Integrated **Google Maps API** to geolocate noise hotspots across cities.
- Built and deployed a **FastAPI** backend for secure data ingestion, validation, and API endpoint handling.
- Prioritized **mobile-friendly** and **accessible UI/UX** to accommodate users of all experience levels.

T5Summarize
Fine-tuned and deployed a T5 model for summarizing news and long-form text:

- Fine-tuned **T5** on the **CNN/DailyMail dataset** for high-quality abstractive summarization.
- Built a **Streamlit** demo allowing users to input text and receive AI-generated summaries.
- Leveraged **Hugging Face Transformers**, **PyTorch**, and **Python** for model training and inference.
- Showcased model effectiveness across diverse input types, demonstrating real-world NLP capabilities.

HONORS

Dean’s List
The National Society of Leadership and Success