Danny A. Thornewell

Seattle, Washington | dthornewell@outlook.com | (206) 503-3296

EDUCATION

Purdue University – West Lafayette, IN — August 2023 - May 2026

Bachelor of Science, Major in Computer Science, Minor in Mathematics — GPA: 3.97/4.0

Honors: Dean's List & Semester Honors (Fall 2023 - Spring 2024)

Lakeside School – Seattle, WA — August 2016 - June 2023

High School Diploma — GPA: 3.91/4.0

Member of Curriculum Committee (2021 – 2023) and Head Advisory Board (2019 – 2023)

Honors: National Merit Letter of Commendation (2023), NISCA All-American Academic (2023)

Relevant Coursework:

- **Completed:** Linear Algebra, Multivariable Calculus (Honors), Programming in C, Foundations of Computer Science (Honors), Discrete Math (Honors)
- **In Progress:** Data Structures and Algorithms, Computer Architecture, Foundations Analysis

SKILLS

Languages: Proficient in **C++**, **C**, **Java**, **Python**, — Familiar with C#, JS, SQL, HTML, CSS

Frameworks: OpenCV, CUDA, PyTorch, Flask, Bootstrap, ctypes, SDL 2, Unity, Unreal Engine, Jinja

Dev Tools: Git, GDB, Trello, Ghidra

Hardware: Raspberry Pi Pico, Arduino, NVIDIA Jetson

RESEARCH/CLUB EXPERIENCE

Autonomous Motorsports Purdue (Software Team Coleader & Researcher) January 2024 - Present

- Won 4th place for engineering at the Purdue Spring Undergraduate Research Symposium
- Researched and designed a lane detection system with OpenCV and CUDA Python libraries.
- Engineered an algorithm to curve fit the track edges and determine the midline in real-time.
- Trained and implemented image segmentation models to detect obstacles from depth data.
- Calculated the optimal path using computed track limits and inertial measurements.
- Collaborated to design AMP's kart for the Autonomous Karting Series Grand Prix.
- Planned new software stack design with other leaders and helped onboard new members.

PROJECTS

Reversi AI/Website

- Developed a version of Reversi/Othello for Windows using C++.
- Implemented several heuristic search algorithms including MCTS, Minimax, & Negascout.
- Planned and built with a multithreaded architecture to accelerate algorithm decisions.
- Added a GUI using SDL 2 and handmade assets for the Windows version.
- Utilized PyTorch and genetic algorithms to improve Minimax & Negascout evaluations.
- Designed a website where users can play Reversi against each other or an AI.
- Utilized Flask, Python, and MySQL for backend and JS, Jinja and Bootstrap for the front end.

Reverse Shell Remote Access Virus (Lead Developer)

- Collaborated to design a reverse shell virus with command line access on Windows.
- Utilized Windows TCP/IP API to allow remote access anywhere with an internet connection.
- Designed a hub-and-spoke model to access and command multiple infected computers at a time.
- Built a modular framework with modules including a keylogger, self-download, and boot on start.
- Designed to bypass Windows Defender (build 20349.1668) using code obfuscation.