

Michael Cortese

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Education:

University of Wisconsin Madison

Expected Spring 2028

Computer Science & Mathematics, B.S.

GPA: 3.55

Relevant Coursework: *Data Structures and Algorithms, Discrete Math, Advanced Programming*
Activities: *Kappa Eta Kappa, Professional Electrical Engineering & Computer Science Fraternity*
Programming Languages: *Rust, Python, Python, C++, Typescript, Java, Go*
Misc: *Docker, AWS, DigitalOcean, CMake, Just, Linux, Bun, SQL, Cargo, Neovim, Git, GitHub*

Experience:

Culver's - Crew Manager (Sep 2020–Sep 2025)

Oconomowoc, WI

- **Managed** an average of **30** customer concerns per day, resolving issues swiftly and maintaining a **95%** customer retention rate.
- **Developed and standardized** employment schedules for **65+** employees, **optimizing staffing levels** for each shift and reducing labor costs by **10%**.
- **Launched a full-stack web application** for an employee sales contest, increasing employee contest participation by creating a platform with file upload capabilities and a robust **SQL backend**.

Projects:

Discord Bot Game Engine (Typescript, Discord.js, Git, Bun)

github.com/michaelcortese/survivorengine

- **Architected and implemented** a real-time asynchronous multiplayer game engine used by **10+ players** simultaneously, reducing game latency to less than **100 milliseconds** by utilizing a custom singleton game structure with support for cooldowns, interrupts, and race condition prevention.
- **Designed** a modular command structure for **10+ game actions**, increasing command efficiency by **20%** with a centralized error handling and type-safe validation system.

Image to ASCII Converter (C++, CMake, CImg)

github.com/michaelcortese/image2ascii

- **Engineered** a CLI utility to convert an image to an ASCII representation, **improving execution speed by 25%** through the use of modern **C++17** and **C++23** features like structured bindings and type inference for cleaner, more readable code.
- **Compiled** a custom CMakeLists file, increasing cross-platform compatibility by **100%** for Windows and MacOS.

Multithreaded TCP Port Scanner (Rust, Networking)

github.com/michaelcortese/rust-ip-sniffer

- **Developed** a memory-safe TCP port scanner, increasing scan speed by up to **15x** by utilizing **multithreading** (`std::thread`) and **message passing** (`std::sync::mpsc`) to distribute workloads across a user-specified number of threads.
- **Implemented** custom CLI parsing via an `Arguments` struct, reducing user errors through support for CLI flags.

Black-Scholes Visualizer (Python, Plotly, Streamlit)

github.com/michaelcortese/blackscholes

- **Developed** a user-friendly **reactive** European option pricing graph based on user input
- **Utilized Plotly** and **Streamlit** to create interactive visualization and calculation features, improving data analysis efficiency by **50%** using modern enterprise libraries.

Volunteer / Outreach:

Hour of Code: Led Oconomowoc High School's first **Hour of Code** event with **300+ attendees** ages 5 to 14

Volunteer Coach, Vex Robotics middle school program

Interests:

Cryptography, CI/CD, DevOps, Linux Ricing

Hobbies:

DJing, Vex Robotics, Improv, Pickleball, Kayaking