# TEAM CONTRACT

## Project Overview:

Our team will pursue one of the following two initiatives, based on interest, feasibility, and partnership confirmation:

**Option 1: RTS Game Mod with Adaptive AI**
We will develop a modification for an existing real-time strategy (RTS) game—or create a new RTS title—that integrates adaptive artificial intelligence. The AI will:

- Use machine learning to analyze and counter player strategies over time, or
- Apply rule-based or heuristic logic to respond dynamically to environmental changes and player behavior.

**Option 2: Enterprise App Rebuild (Pending Partnership)**
If a partnership is confirmed, we will execute a full-stack redevelopment of an existing enterprise application. This includes:

- Modernizing legacy systems
- Enhancing user experience
- Aligning the platform with current business and technical standards
- Potentially redesigning the front-end, optimizing the back-end, and integrating scalable cloud services

## Team Commitments:

Regardless of the chosen project, each team member agrees to:

- Collaborate actively through regular standups, sprint planning, and retrospectives
- Communicate transparently about progress, blockers, and feedback
- Respect timelines and deliverables as defined in our shared roadmap
- Contribute equitably to both technical and non-technical aspects
- Document thoroughly to ensure maintainability and knowledge sharing
- Adapt and iterate based on testing, feedback, and evolving project needs

## Team Roster:

Project Lead / Primary Developer: Dylan
Advisor:

Team Signatures

*Dylan*

# Early Professional Experience

My senior design project centers on the development of a software solution or original creative product that embodies modern principles of computer science and software engineering. This initiative serves as a capstone to my undergraduate experience, showcasing not only my ability to plan and architect complex systems, but also to execute them with precision and professionalism. It reflects the culmination of my academic journey at the University of Cincinnati and the practical insights I've gained through internships and co-op roles in software engineering, web development, and research.

Throughout my academic career, I've engaged in a blend of theoretical learning and hands-on development. My coursework has covered core areas such as software development methodologies, quality assurance, embedded systems, and full-stack engineering. These experiences have equipped me with a strong foundation in both the conceptual and practical aspects of building reliable, scalable, and user-centered software.

Some of the courses that have been particularly relevant to my senior design project include, but are not limited to:

CS-2011-20: Introduction to Computer Systems
CS-2023-20: Python Programming
CS-2028C-20: Data Structures
CS-2071-20: Discrete Computational Structures
IT-2030C-18: Information Security and Assurance
IS-2080C-22: Digital Technologies for Business
CS-3003-20: Programming Languages
EECE-3093C-20: Software Engineering
CS-4033-20: Artificial Intelligence: Principles and Applications
EECE-4029-20: Operating Systems & Systems Programming
CS-4065-20: Computer Networks and Networked Computing
CS-4092-20: Database Design and Development
CS-4071-20: Design and Analysis of Algorithms
CS-5168-20: Parallel Computing
EECE-5132-20: Software Testing and Quality Assurance
CS-5167-20: User Interface I
CS-5170-20: The Theory of Formal Languages and Automata

My early professional career has been shaped by a range of roles that introduced me to the practical side of technology and teamwork, beginning with my first position at Endpoint Support, where I worked for approximately six to seven months. In this role, I provided IT support and technical solutions to faculty, staff, and students, helping troubleshoot issues related to computers, peripherals, and network connectivity. It was my first exposure to real-world work environments, and it taught me how to approach problems methodically, communicate professionally with diverse users, and collaborate effectively within a team. I gained valuable experience in diagnosing hardware and software issues, managing service

requests, and delivering reliable technical assistance—all of which laid the groundwork for my future internships and co-op roles in software engineering and development.

My second role in my early professional career was as a Research and Development Co-op at ATech Training, where I worked for approximately seven to eight months. In this position, I focused on identifying cost-effective alternatives and expanding the company's product catalog through hands-on research and testing. I was responsible for evaluating potential new products, designing and developing embedded systems, and building microcontroller boards along with the software to operate them. This role gave me practical experience in Embedded C programming, soldering, and working with platforms such as ATMega, as well as design tools like Eagle. It deepened my understanding of hardware-software integration and taught me how to approach technical challenges with creativity, precision, and a focus on real-world application.

My third role in my early professional career was as a Web Developer Co-op at Siemens Digital Industries Software, where I worked for five months. In this position, I led initiatives to modernize legacy software systems, transitioning them to more adaptable platforms that streamlined development and maintenance. One of my key responsibilities was designing and implementing a new training application to replace outdated Microsoft Word-based onboarding materials, creating a more interactive and scalable experience for new employees. Through this role, I gained hands-on experience with Mendix, a low-code development platform, and explored Astro, a modern web framework focused on performance and simplicity. This opportunity sharpened my skills in full-stack development, user-centric design, and platform modernization, while reinforcing my ability to deliver impactful solutions in a collaborative enterprise environment.

My most recent role in my early professional career was as a Software Engineer Intern at Nationwide Financial, where I worked for four months. In this position, I contributed to a team tasked with developing a new software product designed to replace an outdated legacy system. My responsibilities included writing JUnit tests to improve code coverage and ensure the reliability of existing libraries, as well as supporting the development and modernization of the application's front-end and back-end components. During this internship, I gained hands-on experience with AngularJS, TypeScript, and JUnit testing frameworks, further strengthening my skills in scalable software development, quality assurance, and collaborative engineering within a large enterprise environment.

My motivation for pursuing either of the two proposed senior design project paths stems from both personal interest and professional experience. The game development route is particularly compelling to me because of my background in game modding, which has sparked a deep interest in storytelling, world-building, and interactive design. This path would allow me to channel my creativity into building a playable RTS game with adaptive AI—an experience that not only aligns with my technical skills but also fulfills a long-standing personal aspiration. My goal for this direction would be to produce a fully playable and polished game, ideally published on platforms such as itch.io or Steam.

Alternatively, the enterprise application rework presents a meaningful opportunity to apply my experience in modernizing legacy systems and building scalable web solutions. I was recently approached by an organization I've worked with before, and they expressed interest in partnering on a redevelopment

initiative. Given my familiarity with their mission and operations, I would be honored to give back by helping them reimagine and modernize their existing software. This path would allow me to deliver tangible value to a real-world stakeholder while deepening my expertise in full-stack development and cloud integration.

Both options reflect different facets of my growth as a developer—one rooted in creative exploration, the other in professional service—and I'm excited to pursue whichever path offers the greatest impact and learning opportunity.

## Note on Public Publishing

Please be aware that any materials related to this project that are published on GitHub may differ slightly from the versions submitted for academic evaluation. For privacy and security reasons, certain elements may be modified, redacted, or removed entirely. This is done to comply with best practices in data protection, as well as to honor any future requirements related to platform releases (e.g., Steam) or organizational standards. If the project moves forward into a public or commercial release, additional adjustments may be made to meet company policies and security protocols.