

# WILLIS ERDMAN

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## EDUCATION

### CASE WESTERN RESERVE UNIVERSITY – CLEVELAND, OH

Graduation May 2027.

*M.S. in Computer Science (Dual Enrollment), GPA: 4.0/4.0 (Expected May 2027)*

*B.S.E. in Electrical Engineering, GPA 4.0/4.0.*

- Dean's High Honors. Studied at uc3m. Courses taken: Discrete Math, Data Structures, Algorithms, Linear Algebra, Differential Equations, Physics, Circuits, Digital Logic Design. SDLC course.

## SKILLS

- **Languages:** Python, Java, C++, R, TypeScript, HTML/CSS, MATLAB, Firebase, Git, PyTorch, Linux
- **Techniques:** Object-oriented design, Linear programming, Non-linear optimization, Algorithm design, Relational databases (SQL, SQLite), distributed and multi-tiered systems, Cloud (AWS, GCP)

## EXPERIENCE

### PROGRESSIVE INSURANCE

Jan 2025 – Present.

*xLab Student Consultant, Case Western Reserve University. Cleveland, Ohio.*

- Collaborated with MBA students to analyze market data and customer behavior, creating targeted incentive models to increase adoption rates of a new offer which improved risk profiling accuracy.
- Created a proof-of-concept digital twin interface to assess property risks using smart home technology.
- Shared complex technical challenges and solutions to both technical and non-technical stakeholders.

### COLLABORATIVE CODING CWRU

Sep 2024 – present.

*Project Manager, Cleveland, Ohio*

- Led three sub-teams, and guided younger students, to design an Arduino R4-based LED matrix, controlled via a Google Cloud web app, ensuring timely deployment and enhancing IoT expertise.
- Revamped Dr. Block's thesis website using React and GCP and implementing CI/CD with Netlify.

### VTOLCWRU – DESIGN, BUILD, FLY COMPETITION

Sep 2024 – present.

*Systems Engineer, Cleveland, Ohio*

- Developed and integrated scalable wireless communication systems, enabling real-time off-board computations during flights and supporting data-driven navigation and targeting at speed.
- Applied agile methodologies to ensure fault-tolerant, cost-efficient, and scalable performance.

### PORTLAND STATE UNIVERSITY

June – Sep 2024.

*Research Intern, Department of Electrical and Computer Engineering (MCECS). Portland, Oregon.*

- Developed an algorithm to simulate balloon ascent and trajectory using NOAA particle and wind data, practical experience in complexity theory by analyzing how small changes in initial conditions impacted trajectory predictions and computational challenges of modeling dynamic systems.
- Used PyTorch to develop ML models (classification, 95% accuracy) based on gas/Radar information.
- Designed a network to gather sensor data using APRS and Meshtastic and log to a database in SQL.

### ASIACOM AMERICAS

June – Sep 2023.

*Data Center Technician. Hillsboro, Oregon.*

- Led a team of 5 to identify and resolve 10+ common installation issues.
- Conducted weekly QA and post-assembly maintenance on 30+ TikTok and Bytedance server racks.

### STARBUCKS

June 2021 – Nov 2022.

*Barista. Portland, Oregon.*

- Collaborated with a 10-person team to achieve shared goals.
- Created a positive customer experience for upwards of 50 customers an hour.

## AWARDS

### WON CITADEL LLC / CITADEL SECURITIES' `TERMINAL` CODING COMPETITION.

Sep 2022.

- Developed a competitive real-time strategy agent, with compute and memory constraints.
- Tested 15 models, fine-tuning the agent to efficiently utilize the 5-second compute limit per turn.
- Implemented advanced AI techniques to track moves, allowing adaptive responses during gameplay.

## OTHER

- FCC Amateur Radio Service Operator – Technician Class.
- Also interested in travel, hiking, and soccer. Fluent in English (native) and Spanish.

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## FEATURED PROJECTS

### CITADEL CODING COMPETITION AGENT

Sep 2022.

- Designed and implemented a competitive AI agent for Citadel's strategy-based coding competition.
- Python, game theory, pathfinding algorithms, real-time decision-making. Won 1<sup>st</sup> place!
- **Repo:** [github.com/williserdman/c1games\\_terminal](https://github.com/williserdman/c1games_terminal) | **Demo:** [youtube.com/watch?v=FUUvTQnPesk](https://youtube.com/watch?v=FUUvTQnPesk)

### 3D PORTFOLIO WITH THREE.JS AND SVELTEKIT

Jan 2024.

- Developed an immersive 3D environment emulating an operating system interface.
- THREE.js (3D rendering), SvelteKit (UI/UX), WebGL.
- **Site:** [portfolio.williserdman.com](https://portfolio.williserdman.com)

### MECHANICAL NEUROEVOLUTION

Jun 2024.

- Neuroevolution system to train AI agents in balancing task using evolutionary algorithms.
- TypeScript/JavaScript, NEAT (NeuroEvolution of Augmenting Topologies)
- **Site:** [polebalancing.williserdman.com](https://polebalancing.williserdman.com)

### RESEARCH EXHIBITION

Sep 2024.

- Built a full-stack system to collect, store, and visualize sensor data via AREDN mesh networks.
- SQLite (database), Chart.js (visualization), SvelteKit (frontend).
- **Site:** [williserdman.com](https://williserdman.com)

### BOIDS FLOCKING SIMULATION

- Real-time 3D visualization of flocking behavior using Craig Reynolds' Boids algorithm
- **Site:** [amazing-douhua-119f06.netlify.app](https://amazing-douhua-119f06.netlify.app)

### INTERACTIVE POKEDEX

- Demonstrates frontend development proficiency and API utilization for scalable web apps.
- **Site:** [musing-clarke-43c9a6.netlify.app](https://musing-clarke-43c9a6.netlify.app)

### NETLIFY-DEPLOYED WEB PROJECTS

- CI/CD pipelines for automated deployments. Unity for game development
  - [eager-hawking-5575c6.netlify.app](https://eager-hawking-5575c6.netlify.app)
  - [silly-torvalds-4e6a47.netlify.app](https://silly-torvalds-4e6a47.netlify.app)
  - [serene-chandrasekhar-71714f.netlify.app](https://serene-chandrasekhar-71714f.netlify.app)
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