

Andy Ye

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EDUCATION

Georgia Institute of Technology

Bachelor of Science in Computer Science, GPA: 4.00

Clubs and Activities: RoboJackets, Web Dev @ GT

Relevant Coursework: Differential Equations, Object-Oriented Programming, Linear Algebra, Multivariable Calculus, Computer Modeling Algorithms, Computer Architecture, Software Development, Data Structures and Algorithms

Atlanta, Georgia

Expected May 2026

EXPERIENCE

High Oaks Robotics

Team Member

Naperville, Illinois

Sept 2022 – May 2024

- Designed and assembled several complex, competition-ready robots meshing various components together such as multi-stage lifts, advanced intake mechanisms, precision claws, and integrated visual/encoder-based odometry systems.
- Leveraged 3D printing (onShape), CNC, and Laser Cutters to manufacture intricate custom parts, ensuring seamless compatibility with existing mechanisms.
- Developed effective control algorithms for holonomic autonomous robot navigation via guided vector fields while minimizing path deviations through linearized quadratic regulators.
- Performed accurate localization based on visual, IMU, and dead wheel encoder readings on SE2 lie group with a variation of unscented Kalman filters.

PROJECTS

Doodlah | doodluh.andyy.dev | github.com/idke64/doodluh

2025

- Developed a real-time collaborative drawing application using SvelteKit and TypeScript, implementing a custom canvas-based system supporting features such as free-drawing, erasers, shapes, live cursor tracking, zooming/panning, and revision control.
- Built collaboration infrastructure using Socket.IO websockets for synchronized state management across clients supported by a backend built with PostgreSQL/Drizzle ORM and secured through cookie-based authentication.
- Self-hosted the containerized application with Docker, using Traefik as a reverse proxy with Let's Encrypt for automated SSL management, and secured external access via Cloudflare Tunnels.

CodeBytes Website | codebytes.codes | github.com/idke64/codebytes

2024

- Designed a responsive, full-stack web application serving as both an event platform and a competition portal utilizing NextJS, React, and TailwindCSS, including integrated authentication, data management, and real-time contest rankings provided with Firebase.
- Implemented a robust submission and judging system supported by a REST API, featuring immediate feedback, access to past submission details, and a built-in code editor that supports 10 languages.
- Deployed highly-available, self-hosted, Dockerized backend judging server via CloudFlare Tunnels, incorporating worker processes to handle multiple requests concurrently.
- Created a flexible Markdown-based content structure with MDX to dynamically display blog posts and general information.
- Contributed to the design of 30+ algorithmic programming problems, along with custom generated test cases and constraints

Gnomon Learning Website | gnomonlearning.org

2024

- Engineered an innovative learning platform using NextJS, React, and TailwindCSS that provides information about tutoring services in an aesthetically pleasing user interface.
- Leveraged Firebase database and authentication functions, allowing for the creation and sharing of user-generated quizzes.

Gameboy Emulator in Rust | github.com/idke64/gameboy-emulator-rust

2024

- Implemented complete LR35902 instruction set with around 511 opcodes and cycle-accurate emulation of the Gameboy's Pixel-Processing-Unit (PPU) and CPU.
- Enabled support for loading and running Gameboy Read-Only-Memory (ROM) files.

Car Simulation powered by Neural Networks and Genetic Algorithms | github.com/idke64/car-evolution

2023

- Developed autonomous car simulation using Python and Pygame, utilizing neural networks for decision-making and a genetic algorithm for evolutionary training.

Additional Skills

Technical Skills: HTML/CSS, JavaScript, Python, C/C++, Java, Rust, ReScript, Firebase, TypeScript, React, NextJS, ExpressJS, TailwindCSS, Markdown, CAD, REST APIs, Git, Svelte, Sveltekit, Cloudflare, Mathematica, LaTeX, Websockets, SQL

Languages: Fluent in Cantonese, English; Conversational Proficiency in Mandarin