Andrii Bessarab

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🎨 SKILLS

Programming Languages
Java, Python, C++, C, JavaScript, SQL

Concepts
Software Architecture, SDLC, OOP, Algorithms, Data Structures, Embedded Systems, Robotics, 3D Printing, Testing, CI/CD, Databases, Scalability & Security, UX

Web Development
React.js, Node.js, Flask, Django, Heroku, HTML, CSS, SCSS, JSON, PostgreSQL, Bootstrap, RESTful APIs

Hardware
Soldering, Arduino, Electronics Hardware Design, Measuring Tools

Tools
Git, GitHub, Figma, Heroku, Onshape, SOLIDWORKS, AutoCAD, Ultimaker Cura, Excel

Core Competencies
Team Leadership, Project Management, Team Work, Communication, Problem Solving

💼 RELEVANT EXPERIENCE

Loadlink Technologies, *Junior Software Engineering Intern* — 01/2026 – Present · Mississauga, ON
- Contributed to development of major company project in React Native
- In first three weeks, successfully closed over 20 tickets.

Competitive Programming Tutor — 08/2025 – Present
- Provided paid tutoring services to high school students preparing for the Canadian Computing Competition (CCC).
- Developed custom practice materials and provided personalized instruction in Java, C++, and algorithms.
- Strengthened skills in teaching, communication, and problem-solving while helping students prepare for the contest.

Country Day School, *Robotics Lead Programmer & Student Coordinator, FRC Team 4951* — 11/2022 – 05/2025
- Led the development of a highly automated codebase in Java, successfully implementing computer vision for field localization with AprilTags and autonomous path-following software.
- Engineered a custom competition-grade controller that improved control system efficiency.
- Mentored junior programmers, assuring the team's success in the years to follow.
- Assisted in designing through Onshape and served as a backup for mechanical team.

📂 PROJECTS

Autonomous Skewb-Solving Robot (Skewbot) — 10/2025 – 12/2025
- Developed BFS algorithm to pre-compute 3.1 million optimal solutions, utilizing bit-packing to fit the database on a limited-memory hardware.
- Desgined web interface for state scanning, state normalization, and serial communication to automate puzzle state detection.
- Engineered custom 3D-printed mechanical frame and directionally tuned PID controllers to achieve <15s solves.

Sketch-to-Map Running Path Generator (Draw2Route) — 10/2025 – 10/2025
- Engineered penalty-weighted pathfinding algorithm to map user drawings to OpenStreetMap nodes, optimizing for shape matching.
- Developed a backend to process geospatial graph data, performing coordinate projections and serving optimized routes to a Svelte frontend in real-time.
- Secured "Best Use of Algorithms" award among 50+ teams at for the novel application of graph theory to fitness routing.

Custom Robotics Controller — 02/2025 – 05/2025
- Designed and built a custom "Operator Board," including design, soldering, and C++ firmware.
- Improved robot control by creating an intuitive interface with large number of actuators on a custom layout.
- The controller was successfully deployed and used throughout our record-breaking season.

AI-Powered Character Learning in Unity — 03/2021 – 05/2021
- Programmed a neural network and used a genetic algorithm to teach an AI stickman to walk.
- Successfully trained the AI to cover 100 meter distance by running a simulation for around 1000 rounds.

📜 CERTIFICATES

- Harvard's CS50 Professional Certificate in Computer Science for Web Programming
- Harvard's CS50x: CS50's Introduction to Computer Science
- Harvard's CS50T: CS50's Understanding Technology

🏅 AWARDS

Most Sophisticated Algorithm Track Winner, *RythmHacks*	2025
Canadian Computing Competition: Distinction, Senior Division & Perfect Score, Junior Division, *University of Waterloo*	2025
Computer Science & Engineering Highest Mark Achievement, *Country Day School*	2025
AP Scholar with Distinction, *The College Board*	2025
Finance Operation Research Provincial Finalist, *DECA Ontario*	2023

🎓 EDUCATION

University of Waterloo, *Bachelor of Applied Science, Honours Mechatronics Engineering, Cooperative*	2025 – 2030
Country Day School, *Ontario Secondary School Diploma*	2021 – 2025