Maria Nastase

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Technical Skills

Languages: C/C++, Python, MATLAB, VBA, JavaScript, TypeScript, HTML/CSS, PostgreSQL
Tools and Frameworks: Fanuc Roboguide, PolyScope, SolidWorks, Arduino, KiCad, Granta, React, Next.js, Git

Education

University of Waterloo Waterloo, ON
Bachelor of Applied Science, Systems Design Engineering *Sep. 2023 – Apr. 2028*

- Cumulative average: 92%
- **First in Class** Engineering Scholarship for the 1B term

Experience

Automation Engineering and Project Management Intern May 2025 - Aug. 2025
A. Berger Precision *Brampton, ON*

- Lead development of a mobile cobot system, specifying **SORs** and obtaining **RFQs** for automating 4 different machines to reduce operator involvement by 95%
- Designed **Fanuc cobot** logic for bulk part pick-and-place and simulated in **RoboGuide** for path planning, layout validation and cycle time optimization
- Designed, modeled, and created **GD&T drawings** for mobile aluminum extrusion rack in **SolidWorks**, analyzing stability, ergonomics and compatibility, enabling 10+ hours of unattended operation
- Designed and 3D printed custom gripper extensions to pick 15+ parts, as well as custom fixtures for improved part fit and inspections
- Researched standards to determine optimal area scanner, wiring and pneumatics integration to ensure compliance and operator safety
- Updated part drawings, **PFMEAs**, inspection sheets and work instructions for continuous improvement and audit readiness

Electrical Engineering Team Member Jan. 2025 - Present
Waterloo Hacker Fab *Waterloo, ON*

- Implemented an **ESP32**-based temperature control system using a thermocouple, solid state relay and variac to ramp a tube furnace to 1100 °C for transistor fabrication
- Designed a **PCB** in **KiCad** and analyzed power distribution to regulate temperature across two separate heating elements
- Soldered small SMD components onto custom **PCBs** and adjusted PID parameters for reliable prototype operation

Software Implementation Specialist Sep. 2024 - Dec. 2024
Teamworks *Durham, NC - Remote*

- Developed **Python** and **VBA** scripts for PDF and Excel scraping, automating mass data uploads to Teamworks Inventory Management and eliminating manual data entry
- Recreated the navigation bar for Teamworks Inventory Management using **HTML**, **CSS**, and **JavaScript** for UI/UX improvements and consistency across all Teamworks products
- Wrote **PostgreSQL** queries to update and customize the software based on the needs of individual clients, allowing it to track items beyond the original scope of the product
- Performed quality assurance testing with comprehensive functional and regression tests to ensure that new features and updates are bug-free

Projects

Automated Self-Resetting Machine | *SolidWorks, C, Arduino*

- Designed a 3-D printed base, laser-cut baseplate and hand-cut aluminum linkages using **DFA** principles while optimizing material use and ensuring smooth linkage rotation
- Designed and built a "useless machine" that turns itself off when turned on with an **Arduino Uno** and **ATtiny**
- Soldered the electrical components to a perfboard to control the stepper motor and switch mechanism

3D Bear Puzzle | *SolidWorks*

- Created a 3D-printed puzzle of a fish-eating bear in **SolidWorks** with removable arms, legs, and mouth, along with a functional drawer mechanism for retrieving the fish
- Applied **DFM** and **DFA** principles, ensuring part rotation and ease of assembly, and set up parts for 3D printing with the Zortrax slicing software
- Developed detailed assembly instructions using **SolidWorks Composer**, applying **dimensioning heuristics** for clarity

Upright | *Next.js, React, TypeScript, Tailwind CSS, PostgreSQL, Swift*

- Created an app that detects falls using phone accelerometer and notifies the user's emergency contact via the **Twilio API**
- Designed a **React** interface to display the severity of the fall and the user's location using the **Google Maps API**
- Implemented a **Next.js** backend calling on a **Prisma** database to retrieve user profiles and fall history