Matthew Maciesowicz

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EDUCATION

University of Toronto Sep 2020 - Dec 2025 (Expected)

Bachelor of Applied Science in Computer Engineering, Minor in Artificial Intelligence Engineering
- Courses: Algorithms & Data Structures, Operating Systems, Software Engineering, AI/ML, Computer Security

PROJECTS & OUTSIDE EXPERIENCE

"Shtei" - Chess Variant Web Application Remote
Game Inventor & Software Engineer Mar 2024 - Mar 2025
🔗 shtei.maciesowicz.ca

- Engineered a full-stack chess variant web application, "Shtei", enabling users to play and analyze positions against AI opponents across 8 difficulty levels, using **React**, **TypeScript**, and **Express.js**.
- Developed & optimized an AI move generator, integrating custom-adapted Stockfish (**C++**) and a **PyTorch** neural network, achieving a **100% win rate** against the game's creators and strong university-level players.
- Designed a **RESTful API** to facilitate seamless move communication between the frontend and backend AI.
- Boosted server performance by spawning dedicated AI instances per user, enabling seamless multiplayer play.

"UofTrade" - Second Hand Marketplace Web Application Toronto, ON, Canada
Frontend Developer & UX/UI Designer Sept 2024 - Dec 2024
🔗 maciesowicz.ca/projects/uoftrade

- Designed and developed the frontend of a **React**-based marketplace application, similar to Kijiji/Facebook Marketplace, using **TailwindCSS** to deliver a responsive and user-friendly interface.
- Implemented core features, including item browsing, searching & filtering, image uploads, and post creation.
- Collaborated in a team of 5, utilizing **Agile** methodologies including: employing **Jira** for task management and **GitHub** for version control, code reviews, and pull request workflows.
- Leveraged **Docker** to containerize the application, simplifying backend-frontend integration and deployment.

Etymology Dictionary Android Application Remote
Android App Developer Jun 2024 - Jun 2024
🔗 maciesowicz.ca/projects/etymology

- Developed an Android app in **Java**, providing offline access to the etymology/origins of over 4 million words.
- Optimized search with dynamic auto-complete, using **SQLite** and **MySQL** for faster, more efficient querying.
- Designed an intuitive user interface with material design principles, enhancing usability and accessibility.

GIS Graphical Mapping Application Toronto, ON, Canada
Software Engineer Jan 2023 - Apr 2023
🔗 maciesowicz.ca/projects/gis

- Developed a Google Maps-style application in C++ using the OpenStreetMap dataset, enabling efficient route navigation via vehicle, transit or bike, point-of-interest search.
- Implemented A* & Dijkstra's **algorithms** to optimize route calculations for user-selected destinations.
- Utilized the **GTK** library on **Linux** for interactive rendering of map elements such as lines, and polygons.

"Mimir" - Search Engine Toronto, ON, Canada
Full Stack Developer Sept 2024 - Dec 2024
🔗 maciesowicz.ca/projects/mimir

- Developed a **Python**-based search engine similar to Google Search using the Bottle framework, implementing core features like document indexing, keyword ranking, and result highlighting.
- Designed a custom inverted index algorithm for efficient storage and retrieval of large datasets with **MySQL**.
- Deployed the app on an **AWS** EC2 Instance, ensuring robust performance and scalability.

SKILLS

Languages: Python, C/C++, HTML/CSS, JavaScript, TypeScript, Java, MySQL
Frameworks & Libraries: PyTorch, React.js, Express.js, Numpy/Pandas/Matplotlib, Flask, Socket/Requests
Tools: Git/GitHub, Docker, AWS/Cloud Technologies, Jira, Linux/Unix, Arduino, Figma, Adobe Creative Suite