Nadim Mottu

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Skills

Languages: Java, Python, C, C#, MIPS, GML, Lua
Web Dev: AWS, Apache2, JavaScript, HTML, CSS
Databases: PostgreSQL, Prisma, SQLite

Libraries: Java Swing, Numpy, SciPy, scikit-learn, LangChain,
OS: Debian, Ubuntu, Fedora, Arch, Windows
Tools: Docker, NextCloud, Latex, excel, GIMP, Unity, Adobe Photoshop, Adobe Premiere

Education

University of Toronto **September 2022 – May 2026**
Bachelor of Science *Latest Seasonal GPA: 3.90/4.00 - Cumulative GPA:3.78/4.00*
Computer Science Specialist with a Focus in Theory of Computation, Minor in Mathematics

- Courses Taken: Enriched Data Structures, Enriched Theory of Computation, Graph Theory, Analysis I&II, Algebra I&II, Probability and Statistics I, Topology, Computer Organization, Software Tools and Systems Programming, Software Design, Machine Learning, Artificial Intelligence, Programming on the Web, Databases,
- University Of Toronto International Scholar Award - Faculty of Arts and Science (2022-2026)// Dean's List Scholar in the Faculty of Arts & Science (2023–2025)// Innis College Exceptional Achievement Award (2023–2024)

Washington International School **2014 – 2022**
IB - Bilingual Diploma *IB: 41/45 - GPA: 7.00/7.00*

- Higher level: Mathematics: Analysis and Approaches, Physics, Economics,
- Representative for student government (ISU) // Founder of Coding && Computing Club

Experience

Toronto Climate Observatory **May 2024 – Present**
Research Assistant *University of Toronto — Toronto, ON*

- Conducted a literature review on participatory climate data collection methods; designed and prototyped a data acquisition pipeline and user journey mapping interface for a crowdsourced climate reporting tool.
- Developed and tested evaluation frameworks to assess the accuracy of LLM-based data extraction methods against human-annotated benchmarks, using domain-specific metrics.
- Collaboratively developed a CMIP6-based regional climate model to project temperature changes in Toronto; analyzed implications for outdoor skating rink viability. Co-authored research poster on improving public usability of complex climate data.
- Performed statistical analysis using NumPy, Matplotlib, and linear regression to evaluate model predictions and data usability trends.

Committee on the Environment, Climate Change, and Sustainability **May 2025 – Present**
Research Assistant *University of Toronto — Toronto, ON*

- Designed and evaluated an NLP-based chatbot to improve student access to sustainability information; conducted usability studies and iteratively refined question-answering accuracy using LangChain and retrieval-augmented generation.
- Employed LangChain/LangGraph to explore agent-based architectures for dialogue systems in sustainability education contexts.

University of Geneva / Manufacture Thinking **May 2025 – Present**
Volunteer *University of Toronto — Toronto, ON*

- Co-authored a chapter for an upcoming book on Agentic AI design, focusing on student-facing educational tools.
- Designed and implemented a generative AI tool to create practice questions and introductory proof problems; evaluated question clarity and difficulty through user testing with undergraduate students.

Internal Drive Tech **June – August 2024**
Summer Instructor *Amazon HQ/American University — Washington, DC*

- Taught 7 one-week classes to children 6-16 in coding skills with languages like scratch, Lua, Java and C#
- Helped over 50 students develop projects making sure to highlight important software engineering practices such as testing, debugging, reviewing one another's work. Explained technical and mathematics concepts with application to CS.
- Collaborated with other instructors to develop curricula and filled in when needed.

Fund for the Public Interest **May - July 2023**
Field Manager *Washington, DC*

- Led a team of 3-4 people canvassing door to door to rally the citizens of Virginia to pass a bill to reduce wasteful plastic packaging.
- Raised over helped $9000 for the cause, was the highest performing Canvasser in the DC office.
- Trained new members

Syrian Community Network **March – December 2021**
Homework Room Tutor *Online*

- Tutored middle school Syrian refugees based in Chicago (IL) amidst the global pandemic in Math and English.

Highlighted Projects

Ecliptica Town - An LLM Based Detective Game **January 2025 – April 2025**
https://team-ecliptica.itch.io/ecliptica-town

- Designed AI systems based on LLMs to simulate NPC interactions with agentic behavior in a detective video game.
- Fine tuned models and optimized them to run on local hardware. Showcased at Zynga games studio and Level Up.

Minesweeper AI **December 2024 – Present**
https://github.com/nadim-mott/minesweeper

- Developed a terminal based implementation of popular puzzle game Minesweeper coded in C with separate compilation.
- Uses AC-3 to automatically solve a puzzle or determine if a given puzzle can be solved without needing to make a guess.

Scriptorium **September 2024 – December 2024**

- Develop with a team a website in React and tailwindCSS allowing users to develop and share their code.
- Provides isolation to all projects using Docker in backend, and allows users to run code in a safe environment.
- Allows for user account creation authentication, rating, posts, and reporting. Follows REST best practices.

D&D Digital DM screen App **April 2024 – Present**
https://github.com/nadim-mott/DnD-Screen

- Developed a digital DM screen for Dungeons and Dragons in JavaFX. Follows the MVC design pattern.
- Uses databases to store information on monsters and spells. Stores data with optimal use of custom data structures.

Tetris in Assembly **January 2024 – April 2024**
https://github.com/nadim-mott/tetris_assembly

- Developed a Tetris game in MIPS assembly language. Used the SATURN simulator to run the code.
- Made use of low level programming techniques to develop the game. Used bit map to display the game and UI.
- Collaborated with a partner. Wrote the game logic, graphics, and reviewed code written by my partner.

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Mandelbrot Set Visualizer **January 2022 – April 2022**
https://github.com/nadim-mott/Making-Mandelbrot

- Explored visualization techniques for fractals including the Mandelbrot set and Julia set using Java swing.
- Experimentally compared approximation algorithms for the Mandelbrot set including randomized algorithms.

Caesar Productivity App **September 2023 – December 2023**
https://github.com/nadim-mott/Caesar

- Developed a task and event management application in Java, adhering to Clean Architecture and SOLID principles.
- Built the app from scratch as part of a team of three. Conducted code reviews for other contributors' use-cases.