# 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*

- 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)
- Graduate courses taken: CSC2221 - Introduction to the theory of distributed computing // CSC2421 - Online and other Myopic Algorithms

**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 – June 2024 ; May – September 2025**
*Research Assistant* *University of Toronto — Toronto, ON*

- Designed a python library for collecting and extracting emissions data for fossil fuel fuel companies and financial institutions.
- Created a pipeline for collecting and comparing data from multiple sources.
- Developed and tested evaluation frameworks to assess the accuracy of AI based data extraction methods against human-annotated benchmarks.

**Committee on the Environment, Climate Change, and Sustainability** **May – September 2025**
*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** **January – September 2025**
*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.

## Published Reports and Papers

[1] Nadim Mottu. *Agent IA à fabriquer des QCM*. Ed. by Georg. 2025. URL: https://www.manufacturethinking.ch/post/ai-shapers-2025-agent-ia-%C3%A0-fabriquer-des-qcm-nadim-mottu.

[2] Nadim Mottu. *Real Time Proportional Throughput Maximization: How much advance notice should you give your scheduler?* 2025. arXiv: 2511.16023 [cs.DS]. URL: https://arxiv.org/abs/2511.16023.

## 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 Algorithm** **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.