

Nicholas J. Connors

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Education

McGill University, Montreal

B. Sc. Major Physics and Computer Science (*Graduating April 2022*)

- **Teaching Experience:** "Numerical Methods" tutor in Fall 2021.
- **Awards:** Tomlinson Engagement Award for Mentoring, Multidisciplinary Undergraduate Research List, Global Designation
- **Miscellaneous:** Academic exchange to Lunds Universitet, Sweden (Winter 2020); published co-author in the Astrophysical Journal 🌐.

Skills

Programming Languages & Tools: C#, Python, C, C++, Java, JavaScript, OCaml, Bash, Git, CSS, HTML

Game Development Tools: Unity, Godot, LibGDX, HLSL & GLSL Shaders, Blender

Languages: English, French (Intermediate)

Work Experience

Matrox Electronic Systems Ltd., Dorval

Software engineering intern (Winter 2018, Summer 2019)

- Created automated test scripts for the Matrox Design Assistant IDE in C#.
- Implemented functions from the Matrox Imaging Library into Design Assistant for specific client applications.
- Developed a clientside web application using jQuery and the JSViews template library.

Projects

Ubisoft Game Labs competition 2022 (Unity | On-Going)

- Team lead and programmer for one of McGill University's teams.

Modding for *Outer Wilds* (Unity | On-Going)

- **New Horizons:** World creation mod that allows users to customize the game via JSON files (2.2k+ downloads) 🌐.
- **Other Mods:** Real solar system (1.1k+ downloads) 🌐, third person camera (800+ downloads) 🌐, character model replacement (300+ downloads) 🌐.
- **Community Involvement:** Moderator for outerwildsmods.com & curator on the mod database 🌐.

Itch.io games 🌐

- **Asteroid Arcade** (Java + LibGDX): Android shoot-em-up game with motion controls.
- **Mockbuster Video** (Godot): In-browser management simulation game.
- **Apes Together Strong** (Godot): Three character platformer with 10 levels.
- **Elementary** (Godot): Chemistry-theme grid based puzzle game with 20 levels.

Hackathons

- **ImplementAI Hackathon 2018 1st place:** Team project to implement reinforcement learning of a 2D virtual spacecraft in a modified OpenAI LunarLander-v2 gym environment 🌐.
- **McGill CodeJam 2019 3rd place:** Team project to visualize ArXiv paper similarities using semantic embeddings of key-words compressed into 3D space using principal component analysis 🌐.

Prototypes (Godot)

- Procedurally generated *voxel terrain* with block breaking/placing 🌐.
- *Waves and buoyancy* using shaders and physics forces 🌐.

Music Editor with AI Auto-Suggest (JavaScript | Python | Flask | Keras) 🌐

- Final project of 9-week McGill AI Society machine-learning bootcamp.
- Uses an LSTM model made in Keras and trained on classical music MIDI data to suggest notes to the user.

Volunteering

McGill Computer Science Undergraduate Society helpdesk

Peer-tutor (Fall 2020 / Winter 2021 / Fall 2021)

- Tutored Computer Science students ranging from intro-level to upper-level classes through remote learning.