

Rishi Nair

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EDUCATION

McGill University

B.Sc. in Computer Science

Montreal, Canada

August 2023 – present

Relevant Course Work: Linear Algebra and Geometry, Calculus 2, Introduction to Computer Science, Calculus 3, Introduction to Software Systems, Introduction to Computer Systems

University of Toronto Schools

High School Diploma

Toronto, Canada

September 2017 – June 2023

Relevant Course Work: AP Computer Science Principles, AP Computer Science A, AP Calculus, AP Physics 1, AP Physics 2, AP Economics (Micro and Macro), AP Biology, AP Chemistry, AP Statistics

Clubs: Math Society, Physics Club, Duke of Edinburgh Club

PUBLICATION

- R. Nair, An Introduction to Knot Theory, *Crux Mathematicorum*, Canadian Mathematical Society, Vol. 48, No.4, 2022, pp. 199-207. <https://cms.math.ca/publications/crux/issue/?volume=48&issue=4>

RECENT PROJECTS

McGill Semantic Search Engine (2023)

Python, FAISS, SBERT, NumPy, Pandas

https://huggingface.co/spaces/rishinair05/McGill_Course_Search

- Developed a semantic search engine for the 2023/2024 database of McGill courses.
- Created a web scraper using BeautifulSoup.
- Utilized the SBERT 'all-mpnet-base-v2' sentence transformer model, and the Facebook AI Similarity Search (FAISS) library for fast approximate nearest neighbor search.

McGill Computer Science Course Visualization (2023)

Python, PyVis, Pandas

<https://huggingface.co/spaces/rishinair05/mcgill-computer-science-prerequisite-visualization>

- A Utility that uses pyvis to visualize the prerequisites of McGill CS courses as a directed graph.

EXPERIENCE

University of Toronto Schools

Toronto, Canada

Executive Committee, Physics Club (Sept 2021 – Jun 2023) and Math Society (Sept 2022 – Jun 2023)

- Tutored junior students for AP exams, and math/physics contests.
- Responsible for outreach activities, website development and maintenance for the physics club.

University of Toronto

Toronto, Canada

Math Academy Summer Program, Department of Mathematics

June 2021, August 2022

- Accepted into summer programs on knot theory and graph theory based on performance on a problem set.
- Wrote an expository article on knot theory aimed at high school and college students (published in *Crux Mathematicorum*, a journal of the Canadian Mathematical Society).
- Wrote a blog article on graph theory. <https://t.ly/SmZqx>

University of Toronto

Toronto, Canada

Math Mentorship Program, Department of Mathematics

January 2022 – May 2022

- Reviewed the literature on elliptical-curve cryptography and group theory.
- Gave a presentation to other mentors and mentees in the program on the basic principles of elliptical-curve cryptography. <https://t.ly/SZr-6>

qBraid

Quantum Computing Course

Toronto, Canada

June 2021 - August 2021

- Learned about the basics of quantum mechanics, linear algebra and classic computing.
- Introduced to concepts such as qubits, quantum gates, and programming quantum algorithms as well as interesting phenomena such as superposition, interference and entanglement.

University of Toronto

Global Engineering Challenge, Faculty of Applied Science and Engineering

Toronto, Canada

August 2021

- Gained practical experience in data visualization using Python packages such as Matplotlib, Seaborn, Folium and Pandas.
- Learned about dataframes, data cleaning and visualization of geographical data.
- Worked on a group project involving the visualization and extraction of statistics from data on the 2019 wildfires in the state of New York.

Music Youtube Channel

<https://www.youtube.com/channel/UCPyfFCjcz2fWpirLrTIhRDg>

Toronto, Canada

August 2020 – present

- Recorded, mixed and mastered audio in Logic Pro.
- Recorded and edited videos in Final Cut Pro.
- Played guitar covers and composed original music tracks.
- Attracted over 14.2k views.

SKILLS

Programming Languages

Python, Java, JavaScript, C/C++, HTML, CSS

Frameworks and Packages

Pandas, NumPy, BeautifulSoup, Matplotlib, FAISS, SentenceTransformers

Developer Tools

Git, Github, VS Code, IntelliJ, Eclipse

Software

Microsoft Office, \LaTeX , Final Cut Pro, Logic Pro, Adobe Creative Cloud, G-Suite

AWARDS AND ACHIEVEMENTS

- Winner of the 2021 MathemAttic article contest organized by the Canadian Mathematical Society.
- Honor roll on the 2022 Canadian National Math League.
- AP scholar with Distinction (2022).
- Honor roll on the 2021 American Mathematics Competitions (AMC) 10A contest.
- Honor roll on the 2020 Pascal Contest organized by the Center of Education in Mathematics and Computing at the University of Waterloo.
- National Champion in the 2019 Fryer Contest organized by the Center of Education in Mathematics and Computing at the University of Waterloo.