

Peter Vu

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EDUCATION

Computer Science, B.C.Sc., Honours, Mathematics & Film Studies Minor

University of Manitoba

EG: Dec. 2027

Winnipeg, MB

- GPA: 4.29/4.5
- Coursework: Analysis of Algorithms and Data Structures, Object Orientation, Mathematics of Data Science

TECHNICAL SKILLS

Languages: Python, JavaScript, TypeScript, HTML, CSS, SQL, Java, C, C++, R, Bash, GDScript

Frameworks/Libraries: Next.js, React, Astro, Tailwind, Express, PostgreSQL, Prisma, NumPy, OpenCV, TensorFlow

Developer Tools/Other: Docker, Postman, Fly.io, Git, GitHub, Linux, CMake, Markdown, LaTeX, Neovim, RStudio

WORK EXPERIENCE

Freelance Web Developer

Hanoi - Amsterdam High School for the Gifted

Dec. 2024 - Present

Hanoi, Vietnam (Remote)

- Migrated 10+ Next.js components, layouts and pages into Astro for static site generation and comfortable DX
- Utilized Conventional Commits, Git branching and rebasing for a self-documenting and easily revertible changelog
- Leveraged AI agents such as v0 and Cursor for coding and system design assistance, enabling efficient development

PROJECTS

To Do List | Express, Node.js, JavaScript, PostgreSQL, Prisma, Docker

Dec. 2024

- Developed RESTful API endpoints for CRUD operations on todo items using Express.js and PostgreSQL/Prisma
- Implemented secure user authentication with bcrypt password hashing and JWT token-based authorization
- Containerized application with Docker and deployed to Fly.io with automated HTTPS and PostgreSQL support

Image Compression | Flask, NumPy, Pillow, Python, JavaScript

Oct. 2024

- Built Flask REST API handling image uploads and compression with proper error handling and type hints
- Implemented Singular Value Decomposition algorithm from scratch using NumPy for efficient image compression
- Developed responsive frontend with drag-and-drop uploads, quality slider, and side-by-side image comparison

EITC Navigator | JavaScript, HTML, CSS, JSON

Feb. 2024

- Led cross-functional team of 5 developers using agile methodologies and distributed version control systems
- Implemented Dijkstra's pathfinding algorithm with multi-floor navigation support and real-time path visualization
- Engineered automated JSON data generation pipeline by processing architectural floor plans using image analysis

WORK EXPERIENCE

Teaching Assistant and Grader

Department of Computer Science, University of Manitoba

Sep. 2024 - Present

Winnipeg, MB

- Instructed 30+ students on systematic program design with live coding demonstrations and empathetic mentorship
- Evaluated 130+ Python programs of varying styles, providing detailed feedback and debugging breaking code
- Achieved 86% above-average ratings for teaching effectiveness and attained 320% grading efficiency for tests

Undergraduate Research Assistant

Human-Computer Interaction Lab

Sep. 2024 - Present

Winnipeg, MB

- Architected a chapter on advanced linked lists with practical explanations and 10+ examples of varying difficulty
- Evaluated and revised 30+ exercises in a beginner Java workbook, improving their clarity and effectiveness
- Specified various content suggestions, ensuring accessibility for different programming backgrounds such as Python

Undergraduate Research Assistant

Geometric, Approximation & Distributed Algorithms Lab

May 2024 - Aug. 2024

Winnipeg, MB

- Conceived 10 new results with 20+ pages of mathematical proofs for new territory in the pursuit-evasion field
- Synthesized a significant proof built on 10+ lemmas for the lower bound of the underexplored series-parallel graph
- Collaborated with lab members in weekly meetings to iterate on several famous computational geometry problems