Peter Vu

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EDUCATION

Computer Science, B.C.Sc., Honours, Mathematics & Film Studies Minor   Sep. 2023 – Present
University of Manitoba   *Winnipeg, MB*
- GPA: 4.36/4.5

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, TypeScript, C, C++, R, Bash, HTML, CSS, GDScript
Frameworks/Libraries: NumPy, Pandas, Matplotlib, OpenCV, TensorFlow, Flask, React, Astro, Node.js, Express
Developer Tools/Other: Linux, CMake, Git, GitHub, Markdown, Neovim, RStudio, Visual Studio Code

WORK EXPERIENCE

Teaching Assistant and Grader   Sep. 2024 - Present
Department of Computer Science, University of Manitoba   *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   Sep. 2024 - Present
Human-Computer Interaction Lab ↗   *Winnipeg, MB*
- Architected a chapter on advanced linked lists with practical explanations and examples of varying difficulty
- Evaluated and revised 30+ exercises in a beginner Java workbook, improving their clarity and effectiveness
- Specified 5+ suggestions for content, ensuring accessibility for different programming backgrounds such as Python

Undergraduate Research Assistant   May 2024 - Aug. 2024
Geometric, Approximation & Distributed Algorithms Lab ↗   *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

PROJECTS

Image Compression ↗ | *Python, Flask, NumPy, Pillow, JavaScript, HTML, Git*
- Developed an image compression application using Flask, enabling users to upload images and adjust quality
- Implemented a custom SVD algorithm in NumPy to compress images, achieving efficient image size reduction
- Integrated asynchronous JavaScript for form submissions, dynamically updating the page with compressed images

EITC Navigator ↗ | *JavaScript, HTML, CSS, JSON*
- Managed a team of 5 first years, introducing them to collaborative tools such as Trello, Git and GitHub
- Implemented Dijkstra's algorithm in JavaScript for optimal pathfinding across multi-floor building layouts
- Created comprehensive room database with manually collected metadata assisted by Processing and Java scripts

Witch's Forest ↗ | *Godot, GDScript*
- Developed a Mega Man-inspired platformer, implementing character state management and combat mechanics
- Engineered responsive player controls and animation systems using GDScript for fluid gameplay experience
- Collaborated with a peer to deliver a compact game demo with optimized asset integration and level design

EXTRACURRICULAR ACTIVITIES

Director of Student Affairs   Apr. 2024 - Present
University of Manitoba Computer Science Students' Association ↗   *Winnipeg, MB*
- Published the 12-page First Year Guide for aspiring students, earning 1,500+ visitors to the club's website
- Led team of 3 to 6th place nationwide in the IEEEXtreme 18.0 Programming Contest, highest in the university