

Amanda Shum

Burnaby, BC | 604-293-1212 | amanda.ws.shum@gmail.com | www.linkedin.com/in/amandawshum

PROFESSIONAL SUMMARY

Machine Learning Engineer with hands-on experience in **Reinforcement Learning, Computer Vision, and workflow automation**. Developed **CNN classifiers in TensorFlow and PyTorch**, and applied **data-driven strategies** to optimize business operations. **Led automation initiatives** that saw **25% growth in property rental bookings** and **75% workload reduction** across **10,000+ inquiries** through **Google Apps Script**. Proficient in **Python, Deep Learning, Applied AI, and ML Engineering**, with a focus on delivering practical, real-world solutions.

EDUCATION

Simon Fraser University

Master of Professional Computer Science (Visual Computing)

Burnaby, BC

Expected Graduation Date: June 2027

Queen's University

Bachelor of Computing (Honours), Artificial Intelligence Specialization

Kingston, ON

Graduation Date: June 2025

WORK EXPERIENCE

Kingston Student Housing Co-operative

Vice President

Kingston, ON

2021-2025

- Served as Managing Director overseeing daily operations, HR, facilities, and member services for 21 residential properties, ensuring compliance with safety and regulatory standards.
- Provided strategic leadership and stakeholder management to the Board of Directors, overseeing budgeting, policy implementation, organizational planning, and revenue generating initiatives.
- Led organizational projects including software transitions, and process improvements to improve quality of customer service and “co-op culture”.
- Increased property rental booking reservations by 25% by analyzing customer demographics, optimizing seasonal marketing and room allocation strategies.
- Led automated workflows with Google Workspace and Google Apps Script, reducing administrative workload by 75%, improving data processing and response time within 24 hours for 10,000+ inquiries.

Queen's University

Teaching Assistant

Kingston, ON

Jan 2023-Apr 2025

- Supported courses including Database Management Systems, Computer Architecture, and Elements of Computer Science.
- Guided students in SQL queries, relational database design, Python programming fundamentals, and problem-solving techniques.
- Provided academic support through one-on-one assistance, clarified course concepts for undergraduate students, and facilitated discussions in the course forum.
- Assisted professors with grading assignments, managed course materials, and delivered tutorials.

Queen's University

Information Technology Assistant

Kingston, ON

2024

- Designed and implemented SharePoint and Microsoft Teams sites by auditing legacy content, meeting organizational requirements.
- Assisted with the migration of existing content to new platforms, ensuring completeness, functionality, user accessibility in the new environment.
- Collaborated with stakeholders to ensure content retention, optimize navigation, and improve knowledge-sharing workflows.

PROJECTS

Pothole Detection with Relative Depth Analysis Calculation

Sept-Dec 2025

- Developed a **computer-vision system** that automatically detects potholes and estimates their depth using only a single RGB image. Combined *YOLOv8* for pothole localization with *MiDaS monocular depth estimation* to generate dense depth maps, then implemented region extraction around the bounding box to compare pothole depth against the surrounding road surface. Built modules for depth normalization, noise filtering, and relative-depth scoring to quantify pothole severity without requiring stereo cameras or LiDAR. Evaluated the pipeline on real road images and achieved stable depth differentiation across variations in lighting, texture, and perspective.

KSHC Mailer and Workflow Automation System

Ongoing (2024-2025)

- Designed and deployed a **custom automation system** for the Kingston Student Housing Cooperative using *Google Apps Script*, *Google Sheets*, and *HTML/JavaScript*. Automated core business workflows including email communication, booking management and member applications, with integrated generation of confirmation letters and rental agreements. Designed system architecture, user interface components, and role-based dashboards to improve data organization, approval processes, and operational efficiency.

Accessibility Chrome Extension

Sept. 2025

- Developed a Chrome extension to enhance digital accessibility for users with reading difficulties. Utilized ElevenLabs' *text-to-speech API* to generate voice narration and synchronized text highlighting. Built and tested using *Chrome Developer Tools*, implementing features for multiple voice selection, and interactive UI elements in *JavaScript* and *HTML/CSS*.

Gridworld Coverage

Jan-Apr 2025

- Built and trained RL agent using *Stable Baselines3 (DQN, A2C, PyTorch)* in custom Gridworld; experimented with reward function design and observation space configurations to optimize area coverage; achieved **85% coverage success**.

Fruit Ripeness Detection

Sept-Dec 2024

- Built two-stage deep-learning model using *TensorFlow*, *NumPy*, *Python*, and *Convolutional Neural Network architecture* to classify and predict the ripeness of various fruit types. The model achieves a **96% success rate** of identifying fruit classes by training a primary CNN model that identifies the fruit and then trains specialized sub-CNN models, where each sub-model is responsible for detecting the ripeness of each fruit class.

The Treasure Hunter

Feb. 2024

- Used *Planning Domain Definition Language (PDDL)* to design a model solution that ‘plans a clear path to treasure’ using facts and constraints outlined in a domain file.

The Pentagram

Jan-Apr 2023

- Designed a point and click game using *Unity and C#*; created original assets and audio from *GarageBand*, with a focus on UI/UX.

SKILLS

Programming Languages: Python, C, JavaScript, C++, HTML, CSS, PHP, SQL, R

Frameworks/Libraries: PyTorch, Tensorflow, OpenCV, NumPy, pandas, matplotlib, scikit-learn, Stable Baselines3, JSON, ultralytics

Tools & Platforms: Microsoft Office, Google Workspace, Google Apps Script, Unity, SharePoint, Microsoft Teams, Canva, OnShape, AnyDesk, Visual Studio Code, SharePoint, GitHub Desktop, WordPress

Core Competencies: Computer Vision, Image Processing, Machine Learning, Reinforcement Learning, Deep Learning (Convolutional Neural Networks, Object Detection, Generative AI), Autonomous Driving, Stakeholder Management

Operating Systems: Microsoft, Linux