Sirui (Tina) Wu

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Education

Candidate for Bachelor of Math, CS joint Combinatorics & Optimization, Co-operative Program
The University of Waterloo, Waterloo, Ontario Sep.2020 - Present

- GPA: 86%; President's Research Award, Math Undergraduate Research Award
- Core courses: computer graphics, machine learning, optimization

Summary of Qualifications

- Proficiency in C/C++, Python, MEL, and Linux; Basic knowledge of QT, R, SQL, and Java
- Strong learning ability, solid analytical and problem-solving skills gained through work experiences

Research Experiences

Fellow of MIT Summer Geometry Initiative
MIT, Cambridge, MA, USA (remote), July/2024 - August/2024

- Project 1: Assistive Robot Co-Design: applied SA, GA, MTCS methods to find a near optimal solution
- Project 2: Building SLAM systems for 3D reconstruction of endoscopy videos
- Project 3: Optimizing the AI generated 3D mesh: developed a plug-in for SketchUp
- Acquired cutting-edge knowledge and gained experience collaborating in time-sensitive projects.

Undergraduate Research Assistant - Computation Motion Group by Dr.Christopher Batty
The University of Waterloo, Waterloo, Ontario, September/2023 - June/2024

- Developed an innovative surface re-meshing algorithm aimed at preserving shape integrity and reducing volume errors, using C++ and python.
- Demonstrated self-directed learning, project management, critical thinking, and perseverance by independently creating and refining the project from scratch.

Work Experiences

Pipeline Software Development Intern
Soho VFX Inc., Toronto, Canada May.2023 - Aug.2023

- Developed an advanced "curves" node using C++, enabling data retrieval from alembic files, the object transformations or deformations in Maya, and data output to the 3Delight renderer.
- Collaborated with other developers and artists to enhance in-house Maya plug-ins using MEL.
- Boosted artists' efficiency by 20% with new tools, resulting in positive feedback and bright smiles :) .

Development Assistant (part-time/Volunteer)
LoopX Innovation Inc., Waterloo, Canada Aug.2022 - Aug.2023

- Applied machine learning to traffic light classification using Mmclassification and Python.
- Integrated SSO using APISIX & Casdoor; established API monitors using Grafana & Prometheus.

Software Development Intern
Ford Motor Company of Canada Ltd, Kanata, Canada (Remote) Sep.2022 - Dec.2022

- Developed software features for cloud-connected in-vehicle modules using C++ in Linux environments.
- Improved test coverage from 75% to 82% of a sizable codebase, using Gtest.
- Advanced proficiency in utilizing diverse development tools such as Github, Jenkins, and JIRA, while gaining experience in multi-platform coding for Linux, Windows, and QNX.

Software Development Intern
Hangzhou Hikvision Digital Technology Co Ltd, Hangzhou, China Aug.2021 - Dec.2021

- Constructed a 3D Video Projection Calibration Tool using QT, C++, and Python (with OpenCV). This tool employs the DLT algorithm to project videos onto the 3D scene, incorporating features such as various stream inputs, WebSocket communication, and multi-language settings.
- Enhanced user efficiency of the calibration process by reducing the time required from 30 to 5 minutes.

Relevant project

CS488 Computer Graphics Final Project - a Graphics Engine with cel-shading feature

- Developed and expanded a C++ graphics engine. Implemented features including rasterization, ray-tracing, animation, cel-shading, bump mapping, fire simulation, smoke simulation, elastic object dynamics and shadow mapping. Developed innovative algorithms for cel-shading effects.

Other activities

- As the co-founder of QToys company, designed logos & merch and set up our website by using Shopify.
- Developed a teaching-oriented Physics game in Schrodinger's Hack 2020 by using QT and C++.
- As the event organizer, planned and organized the first TEDxYouth@GXFLS.