Lila Huang

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Skills

Languages: C++, Python, Scala, JavaScript, Perl

Tools: PyTorch, GDB, Linux, Django, React, Redux

Experience

3D Software Developer · Side Effects Software Sep - Dec 2020

- Developed **character rigging tools and visualizations** for the animation software Houdini in Python and C++
- Redesigned and wrote **user interface** for painting capture weights on character rigs, with support for geometry selections and deformations, flexible brush options, and multiple rig types
- Implemented 3D paintbrush features such as smudge and eyedrop brushes

Software Engineering Intern · NVIDIA Jan - Apr 2020

- Developed and tested features for **GPU performance analysis tools** in Perl and C++
- Parallelized and optimized workflow for collecting and processing performance data using the **C++ standard library**, with thread-safe error handling
- Implemented a **concurrent server** for remote data capture using the **APR** networking library

Research Intern · Uber ATG May - Nov 2019

- Designed a novel algorithm for **deep octree-based point cloud compression**; paper accepted to CVPR 2020
- Adapted Balle's **CNN image compression** model for range images in **PyTorch**
- Wrote **Python-C++ bindings** to perform entropy coding and efficiently construct and serialize octrees

Publications

OctSqueeze: Octree-Structured Entropy Model for LiDAR Compression CVPR 2020 (Oral)
Lila Huang, Shenlong Wang, Kelvin Wong, Jerry Liu, Raquel Urtasun

Projects

vroom Nov - Dec 2018

- Designed and created a C++ clone of the command-line text editor vim with **ncurses**
- Used **object-oriented programming** principles and design patterns produce modular and reusable code

LACS compiler Sep - Nov 2018

- Compiled a subset of **Scala** to MIPS assembly language
- Optimized performance by implementing Earley parsing, tail call optimization, and Cheney garbage collection

Awards

Jane Street Electronic Trading Competition Toronto Winner 2019

Rene Descartes National Scholarship 2017

- $18k scholarship awarded annually to 10 students entering the Faculty of Mathematics

Canadian Mathematical Olympiad qualifier 2016

- Top 50 national placement in the Canadian Open Mathematics Challenge

Education

Bachelor of Computer Science, University of Waterloo 2017 - 2022

- 97% faculty GPA, Dean's Honours List
- Course Reports: Generic Semidefinite Approximation Algorithms for CSPs (CS466, Fall 2020)

Activities

Violinist · UWaterloo Instrumental Chamber Ensembles 2017 - 2021
Concertmaster & Assistant Concertmaster · Orchestra @ UWaterloo 2017 - 2019
Violinist · Toronto Symphony Youth Orchestra 2010 - 2017