Terry Chen

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Skills and Goals

- Strongly motivated self-learner with experience working independently under minimal management.
- Knowledgeable in C++, Go, Python, OpenGL, Git, CMake, Boost.

Education

École de technologie supérieure / Candidate for Master of Applied Science — Expected September 2023 – June 2025

- Specialization in Information Technology Engineering (Master in Computer Science equivalent).

University of Waterloo / Bachelor of Mathematics — September 2018 – December 2022

- Double major in **Computer Science** and **Statistics**.
- Completed coursework in computer graphics, concurrent programming, and computational statistics.

Experience

Freelance Developer — January 2022 – Present

Undergraduate Research Assistant / University of Waterloo — May 2022 – August 2022

- Wrote the first ever 3D implementation of the **walk-on-boundary method** for solving Laplace's equation.
- Gained **>6x speedup** from 500 FPS to >3000 FPS by optimizing an existing C++ raytracing codebase.
- Second author of ACM *Transactions on Graphics* paper (most prestigious venue in computer graphics).

Software Developer Intern / A.U.G. Signals — January 2021 – April 2021

- Designed and evaluated **spatial database schema** for optimal retrieval and storage of time-series geolocation data.
- Implemented an InfluxDB backup client, using **exponential jittered backoff** to increase reliability and resilience.
- Developed remote and onboard dashboards for embedded devices, incorporating **real-time data visualization** and **communication over MQTT** through AWS IoT.

Undergraduate Research Assistant / University of Waterloo — May 2020 – December 2020

- Designed and implemented novel **parallel data structures**, leading to a **20x improvement** in training time.
- Implemented a cutting-edge hypergraph matching algorithm using **sequential Monte Carlo importance sampling**.
- Investigated technical approaches to optimizing energy functions and predicting protein structures.

Selected Publications

A Practical Walk-on-Boundary Method for Boundary Value Problems — 2023

Ryusuke Sugimoto, Terry Chen, Yiti Jiang, Christopher Batty, Toshiya Hachisuka

To appear at SIGGRAPH NA 2023 (ACM Transactions on Graphics 42(4))

Projects

Photorealistic path tracer / UWaterloo CS 488 Final Project — December 2021

- Parallel Monte Carlo path tracer implementing importance sampling, principled BSDF materials, microfacet normals, and nested dielectric effects, implemented in under 3 weeks.
- Received final grades of **100** on the project and **98** in the course.

Awards

Undergraduate Student Research Award ($6000) / NSERC — 2022

Undergraduate Research Fellowship ($7500) / University of Waterloo — 2022

President's Research Award ($1500) / University of Waterloo — 2020, 2022

Service

Student Volunteer / SIGGRAPH North America — 2022

Statistics & Actuarial Science Program Committee / University of Waterloo — February 2022 – December 2022