Chuyue Zhang

Computer Engineer

+1 437-343-8066

+86 133-9713-2001

irondumpling010@gmail.com

irondumpling233@outlook.com

www.chuyue.ca

github.com/IronDumpling

Reference

Ian Kuon
Team Manager @ Intel Corp.
My team manager at Intel Corp. during my CO-OP internship.
Email: ian.kuon@intel.com

Chi-Guhn Lee
Professor @ University of Toronto
My supervisor at C-MORE Lab during my summer research internship in robotics.
Email: cglee@mie.utoronto.ca

Steve Engles
Professor @ University of Toronto
The co-supervisor of my capstone project at UofT.
Email: sengels@cs.toronto.edu

Education

9/2019 -5/2024 - Toronto, ON, Canada

University of Toronto

Bachelor of Applied Science and Engineering In Computer Engineering

CGPA (2019 - 2023): **3.75** / 4.0; **AGPA** (2020 - 2021): **3.91** / 4.0

Dean's Honour List: 4 semesters

Skills

Programming

C/C++	Familiar with software & OS programming
C#	Familiar with game and algorithm programming
Python	Familiar with data processing and machine learning
HTML & CSS & JavaScript & React	Familiar with web frontend programming

Knowledge

Data Structure & Algorithm	Score: 91/100 A+
Computer Graphics	Score: 94/100 A+
Computer Network	Score: 87/100 A
Game Engine	Familiar with usage of Unity
Operating System	Familiar with concurrency, virtualisation and file system
Version Control	Familiar with Git & Perforce

Projects

11/2022 - 6/2023

Backtrack (github.com/IronDumpling/Backtrack)

Environment: Unity & C# & Git

Description: A fixed-angle 3D level-based parkour game.

Responsibility:

- Designed game data manager and save load system.
- Built async scene loader with animation cut scenes. Handled camera switch, params adjust scripts using Cinemachine.
- Designed and implemented UI management center and all UI modules.
- Crafted animation FSM and control scripts of UI, characters, and sceneries.

2/2023

Candle Lighter (github.com/ECE496-Game-Project/Candle-Lighter)

Environment: Unity & C# & MAYA & Git

Description: A 2.5D program puzzle-solving game.

Responsibility:

- Generated a sokoban system triggered by programmable instructions.
- Designed draggable and clickable instructions UI.
- Implemented grid map player controller using input system.
- Crafted animation controllers and VFXs of objects.
- Built text information collection system.

9/2022 - 12/2022

Computer Graphics (github.com/IronDumpling/computer_graphics_algos)

Environment: C++ & GLSL & Git

Description: Implement computer graphics algorithms in the course

Responsibility:

- Implemented algorithms such as ray casting, ray tracing, AABB box, Catmull-Clark polygon subdivision in C++.
- Implemented inverse kinematics and mass spring system in C++.
- Crafted shader to simulate earth, jupiter and moon in GLSL.

7/2023 - Present

Wave Optics Education Website (ece496-game-project.github.io)

Environment: Unity WebGL & C# & HTML & CSS & JavaScript & React & Git

Description: A website simulates phenomena. Teach students the knowledge of wave optics.

Responsibility:

- Crafted physics simulation algorithms of wave, polarizer.
- Implemented MVP and MVC in C# and JavaScript for multiple models using reflections, events, and JSON.
- Crafted free-perspective navigation editor feature like zoom, rotate and translation.

Projects (Cont.)

5/2023 - 8/2023

Over-clock Survivor (github.com/IronDumpling/over-clock-survivor-3d)

Environment: Unity & C# & Git

Description: A 3D survival game inspired by "Vampire Survivor" and "Backpack Heroes".

Responsibility:

- Implemented functionalities of player and enemies using MVC.
- Crafted enemy AI using FSM and enemy difficulty dynamic control system.
- Implemented inventory tetris backpack system.
- Designed weapon triggering algorithm using raycast and graph theory.
- Implemented danmaku generation and control system.

1/2021 - 5/2021

Easy Go Map

Environment: Linux & C++ & Git

Description: An offline GIS software, presenting global urban map data with navigation.

Responsibility:

- Implemented city maps with streets and building information from scratch.
- Developed a navigator with A* algorithm which provides driving instructions.
- Implemented greedy algorithms, simulated annealing, and multi-threading to tackle the NP-hard Traveling Salesman Problem, achieving top 15% in the course.

9/2022 - 12/2022

Portfolio (github.com/IronDumpling/SelfIntroWeb)

Environment: HTML & CSS & JavaScript

Description: A portfolio website I made from scratch to introduce myself

Responsibility:

- Designed and implemented the contents of the website.
- Implemented multiple website layout based on the window size using grid.
- Decorated the website using CSS and day-night view using CSS constants.
- Built sliding project gallery using JavaScript.

5/2023 - 8/2023

EmoNet (github.com/IronDumpling/EmoNet)

Environment: Python & Pytorch

Description: A deep neural network recognizes facial expression from webcam.

Responsibility:

- Implemented and trained deep neural network including AlexNet, ResNet.
- Designed the framework of training the model and using the model.
- Achieving the final training accuracy of the model 92.34% and F1 score of 0.75.

Work Experiences

5/2023 - 8/2023

Research Intern @ C-MORE Lab

Environment: Python & PyTorch & Gazebo & ROS2 & Ubuntu & Git

Responsibility:

- Built multi-robot exploration reinforcement learning model.
- Implemented Bayesian optimization to find the optimal robot configuration.
- Generated 3D Gazebo worlds from 2D map scratches.
- Verified the effectiveness of the model and the optimization using ROS2.

5/2022 - 6/2023

Software Engineer @ Intel Corp.

Environment: Python & PANDAS & PostgreSQL & Perforce

Responsibility:

- Improved tools for analyzing and comparing Quartus chip data and actual chip data.
- Developed new features in the websites to customized display chip data.
- Handled chip database using tools such as PANDAS and PostgreSQL.