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Andy Qiu

3rd Year Combined Major in Mathematics and Computer Science

Personal Website: https://github.com/andy-qiu1

Programming Skills

Languages: Python, C, C++, Java, JavaScript, HTML, C#, SQL, Assembly
Framework: Node.js, OpenGL
Software: Unity, Maya

Personal Projects

Tank! (Unity with C#)

2017 May https://github.com/andy-qiu1/tank

- Constructed a 2.5D tank fighting game with help of tutorial online.
- Scripted the movement of the tanks, firing of bullets, calculation of damage of the bullets and management of life-time of objects.
- Implemented UI elements to show scores and ending screen.

Pong Game (Unity with UnityScript)

2017 April https://github.com/andy-qiu1/my-pong-2D-

- Designed and implemented classic pong game, with one ball and two planks and four walls, and all of them have scripted behaviors.
- Scripted the movement of ball so that it is at constant speed and interaction between ball and plank so that 'spin' can be applied.
- Implemented horizontal walls such that score will be recalculated if ball hit them and basic UI element to display score.

Predicting Lung Cancer with Machine Learning (Python)

2017 Jan.-April

- Trained machine learning model on labeled CT scan images of thousands of patients' chest cavity, so that the existence of lung cancer can be determined. (See https://www.kaggle.com/andyqiu for ranking)
- Pre-processed the images so that real distance between two neighboring entries in the data matrix is the same for any images.
- Used pre-train ImageNet to output feature vectors and applied XGBoost on the average over all feature vectors of a given patient.
- Applied model generated by XGBoost to predicted lung cancer given the pre-processed CT scan images.

Academic Project

InsightUBC Website (HTML, TypeScript and Node.JS)

2017 Jan.-April

- Designed a website that can query the courses and rooms at UBC, schedule courses with rooms and display labeled google map.
- Implemented a server that can parse JSON object and HTML tables and add parsed result as data entries, and make SQL-like query.
- Constructed website that utilized the server by sending JSON object through AJAX and display error messages or result tables.

Ray Tracer (C++)

2016 Nov.-Dec.

- Implemented ray tracer to generate image for a collection of triangular meshes, planes in the scene without any external library.
- Detected collision between ray and object based on different geometry property of obejcts.

Airport Website (HTML, PHP and SQL)

2016 Feb.-April

- Designed a website for an fake airport that allowed the crews, customers and managers having different view of data existing in Airport database.
- Used PHP scripts to produce and invoke SQL query on a manually populated SQL database to make query and display result.

CPU Simulator (Java)

2016 May-June

- Designed function to interpret basic Assembly commands and execute them properly in a sequential way.
- implemented next PC prediction and exception handling with a skeleton of a pipelined version of Y86-64 CPU simulator.

"Mind the Gap" Android Application (Java)

2015 July-Aug.

- Constructed an Android application show the location of stops and tube lines on the London Underground and retrieving real-time arrival.
- Parsed data provided by Transport for London Open Data, and created a map-like application that highlights the closest stop near user's location, provides real-time underground traffic information to the user and plans the trip for the user.
- Used JUnit to test the Program.

Interest

- Personal: Skiing, Gaming, Mathematics, philosophy.
- Professional: Game design, machine learning.

Education

UBC Third Year Double Major in Mathematics and Computer Science

2014 Sept-Present (Expected Graduation Time: May 2019)