

HE, Qihao

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Education

Hong Kong University of Science and Technology September 2019 – June 2023 (Expected)

B. Sc. in Data Science and Technology & Computer Science (Double-Major)

- **CGA** (Cumulative Grade Average): 3.662
- **Dean's list**(TGA ≥ 3.7):
Year 1 Fall: 3.738 | Year 3 Fall: 4.053 | Year 3 Spring: 3.780

Internship Experience

Capmi Technology, Ltd. June 2022 – August 2022

Software Developer Intern Sha Tin, HKSAR

- Implemented a more versatile version of **Inertial Measurement Unit (IMU) Sensor-to-Body Calibration Method**, which relies on rotations based on **quaternion** to align the sensor and body frames (which represent their orientations).
- Developed a **Foot Rooted Kinematic Model (FRKM)** that supports translation of the model on a level ground, based on the **acceleration** data from the sensors. This method reconstructed global translations in the **3D space**.
- Designed and incorporated a feature to our working **FRKM** based on **Kalman Filter** that estimates body **global translation** velocity to enable **Pedestrian Dead-Reckoning (PDR)** when both feet are **off-ground**, i.e., when jumping, running or other activities of the kind are detected.

Research Experience

Undergraduate Research Opportunity Project 🌐 June 2021 – December 2021

A Machine Learning Approach to study the relationship between urban morphology and urban heat island

Outcome Adopted feedforward neural network (**FNN**) and Random Forest Regressor (**RFR**) to make estimations on the land surface temperature (**LST**) spatial distribution (average in a year) in a selected region based on quantitative **urban morphologic features**.

Project Experience

Game Project – Pixel Fantasy 🌐 February 2022 – May 2022

- A complete Game Project, featuring a **3D ARPG** with **2D Sprites**, most of the game features are implemented from scratch.
- In this game, the main technical focuses are **Graphics & Physics (collision detection)**, with a standard **rendering pipeline** set-up in C++ and more **advanced graphical effects (e.g. pixelation of our characters)** mostly in GLSL.

Graphics Projects 🌐 February 2022 – May 2022

The following projects are all based on C++ with FLTK for GUI

Impressionist An interactive program for **image processing**.

Modeler An interactive program showing **3D hierarchical model**.

Ray Tracer A **Ray Tracer** with **Phong illumination model** and **Whitted-style ray-tracing**.
Animator An animation program with **spline animation** and **particle system**.

Skills

Programming Languages: C/C++, Java, JavaScript, Python, SQL.

Tech Skills: TensorFlow, Linux, MySQL, Oracle, Three.js, React.