Qihao He

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Education

Texas A&M University May. 2025 – Ongoing
Doctor of Philosophy in Computer Science, GPA 3.88/4.00 College Station, TX, USA

Texas A&M University Aug. 2023 – May. 2025
Master of Science in Computer Science College Station, TX, USA

The Hong Kong University of Science and Technology Sep. 2019 – Jun. 2023
Bachelor of Science in Data Science and Technology & Computer Science (Double-Major) Kowloon, Hong Kong

- Graduated with First Class Honors, GPA 3.65/4.30
- 2022/23 CSE Best Final Year Project: **Real-time Vacancy Detection System**

Work Experience

Aurora Jun. 2024 – Aug. 2024
Software Engineer Intern, Synthetic World and Sensor Simulation Team Mountain View, CA, USA
An accelerated light sampling algorithm to enhance sensor simulation efficiency.

- Implemented Stochastic Lightcuts, organized in spatial cells within a Bounding Volume Hierarchy, reducing rendering time by 55% in many-light scenarios.

Capmi Technology Jun. 2022 – Aug. 2022
Software Developer Intern New Territories, Hong Kong
Two features to enhance expressiveness of an Inertial Motion Capture product.

- Improved an Inertial Measurement Unit Sensor-to-Body Calibration Method for arbitrary orientation.
- Developed a Foot Rooted Kinematic Model algorithm for model translation on level ground and a Kalman Filter for reconstructing complex dynamic human motions including jumping and running.

Research Experience

Neural Path Guiding Sep. 2023 – Ongoing
Aggie Graphics Group, advised by Professor Nima Kalantari College Station, TX, USA
A neural formulation to encode target distributions for path guiding algorithms.

- **Neural Parametric Mixtures for Path Guiding**. Ported from the C++ to Python.
- **RealNVP**. Implemented in CUDA C++.

Projects

Real-time Vacancy Detection System github.com/lzr5198/carpark-vacancy-detection-system Sep. 2022 – May 2023

- Detecting occupancy status of more than 12 parking spaces using one fisheye-camera in real-time.
- Accuracy greater than 90% with pedestrian noise filtering algorithm.

Graphics Projects github.com/iphyqh/course_projects_pg Sep. 2022 – Dec. 2022

- **Geometry Processing:** Implemented Laplacian smoothing methods and a Laplacian mesh editing technique.
- **Rendering:** Implemented volumetric cloud rendering using fractal noise and Ray Marching.

Pixel Fantasy github.com/phyqh/Pixel-Fantasy Feb. 2022 – May 2022

- An OpenGL-based game featuring a 3D ARPG with 2D Sprites without dependence on game engine.

Skills

- **Programming Languages:** Python, C++, CUDA, Java, Scala
- **Tech Skills:** PyTorch, Mitsuba Renderer, OptiX, Embree, OpenGL

Last Updated in May 9, 2025