

**TECHNICAL SKILLS****Basic Skill:** C , C++ , Java , OOP , CMake , Gdb , Algorithms and Data Structure , OCaml (Functional Programming)**Data Sci:** Python , NumPy , Machine Learning , Deep Learning , Natural Language Processing , Computer Vision**Skills:** Front-End: HTML/ CSS , React , Flutter , Interaction Design , Back-End :Database ,SQL ,NoSQL**Others:** OS , Digital Electronic , Software Engineering, Design Patterns , Security**Math:** Calculus , Linear Algebra , Discrete Math , Probability and Statistics , Abstract Algebra , Latex , Topology (basic)**Dev Tools:** bash/shell, git (Version Control), CI/CD pipeline, Docker, VS, VS Code, Pycharm, IntelliJ IDEA.**EXPERIENCE****GPU Architecture/Algorithm Researcher: Huawei Research Lab, Cambridge**

Jun 2023-Present

- Implement and compare Real-time graphics algorithms. Hands-on experience on Modelling and setting up Simulation environment. series Knowledge-Sharing sessions about my research topic. [Details](#)

**GPU Software Engineer: Huawei Research Lab, Cambridge**

Dec 2022-May 2023

- C++, CMake, Gdb, Git, CI/CD pipeline, CMake, hands-on coding on Linux server
- Introducing independent full automation tools in the project, reducing error rate to nearly 0. [Tools](#)
- Workflow of GPU industry, Vulkan graphics API; Projects on GPU driver and verification, Game Engines (UE4).
- Working and collaborating with colleagues, like helping fixing C++ build or link errors. [Details](#)

**EDUCATION****Computer Science, BA**

Graduating June 2025

University of Cambridge, UK

67% (Provisional Marks)

Operating System, Computer Architecture, Solid Mathematics

**Software Engineering, BE**

Sep 2021-June 2022 (First year)

Xiamen University (Top 1 in Southern China, Project 985.)

First Term 3.91 / 4.0, rank 1 / 173 , Overall 88/100

C and C++, Object-Oriented Programming, Calculus and Linear Algebra, ACM, SSE

**HONORS AND AWARDS****LZSS with Concurrent Demo @ UK Tech Arena 2022 Gold Medal**

10 Oct-26 Nov 2022

Learning from scratch in a month, digesting lots of papers and source code available, like RFC1951, etc.

- Responsible for implementation & improvement of LZSS. 6-level / concurrent LZSS Compression. [Project](#)
- Multi-threading, Parallelization, Concurrent Processing. [Details](#).

**Top 2 Team in Mercuria Hackathon 2022 (Python, Data Analysis, Route-Planning)**

16 Dec-18 Dec 2022

Using data analysis to accelerate the energy transition and reduce the carbon emissions of the maritime industry.

- Networking and collaborating with senior engineers, excellent undergraduate, Master and PhD students from Europe.

**Jardine Scholarship**

During Undergraduate

Merit-based, fully-funded Scholarship during my Undergraduate at University of Cambridge.

**Adolescents' Science and Technology Innovation Contest Third Place**

Apr 2020

issued by Shanghai Association for Science and Technology, Shanghai Municipal Education Commission

- Deep research into the phenomenon of tire-locking, including pros and cons using Force Analysis. Thesis writing.
- Introduced Anti-lock braking system into our research by our mentor. Self-made physical simulation test.

**Accepted for Publication Twice**

Oct 2018, May 2019

Topic: Effective Ways to Overcome Obstacle in Study, Campus Life without Snack Stores.

**PROJECTS AND ASSIGNMENTS (SEE APPENDIX FOR MORE)****Computer Graphics (C++, OpenGL)**

Jul-Sep 2022

Composite design pattern for 3D objects class hierarchy with transformation.

- Ray casting, normal visualization, rendering, voxel rendering, super sampling and 3D. [MIT6.837 Project](#) | [Blog](#)
- Huge OOP project, with 3D objects, light, camera classes. Building over 20 C++ source files from scratch.

**Machine Learning and Real-world Data (Python)**

Jan-Mar 2023

Text Classification using ML with improvements

- Naive Bayes classifier, Cross-Validation, NLP, HMM. [CamIA Project](#) | [Blog](#)

**Personal Website and Blog(React, HTML, CSS)**

Aug 2022

<https://peterhuistyping.github.io>

- Project blogs, related files, etc. Built up from scratch using HTML/ CSS. Deployed by React, with high code reuse.

**INTEREST AND EXTRACURRICULAR ACTIVITIES**

Logic and Proof | Music, Yoga, Gym,etc. | Society Joined: Ethics in Mathematics | Macro &amp; Micro, Money Banking

## APPENDIX A: FULL LISTS OF INTERESTING PROJECTS

The following Projects are either individual or collaborative, as grouped by corresponding fields.

### Engineering + Research

#### Details. **LZSS with Concurrent Demo @ UK Tech Arena 2022 Gold Medal**

10 Oct-26 Nov 2022

Learning from scratch in a month, digesting lots of papers and source code available, like RFC1951, etc.

- Responsible for implementation & improvement of LZSS. 6-level / concurrent LZSS Compression. [Project](#)
- Step-by-step explanation, with help from RFC1951, breakpoint debug and inspect the related variables.
- Engage in pre-processing, serialization with teammates.
- Optimization using C pointers, bitwise operators & hash tables. GPU optimization: Branch Prediction.
- Multi-threading, Parallelization, Concurrent Processing. [Project](#) | [Blog](#)
- In a team of 4, Leading the team and communicate with other teammates.

### System

#### **Operating System (MIT 6.S081)**

Oct 2022-Mar 2023

issued by Shanghai Association for Science and Technology, Shanghai Municipal Education Commission

- Program in kernel mode and user mode of Unix Version 6 (v6), implemented for a modern RISC-V multiprocessor.
- Implement Unix utilities, System Call. Process Scheduling, Memory (Segment, Page, VM), I/O, File. [xv6](#)

#### **Database Design Project (CMU15-445 Project)**

Aug-Oct 2022

Engineering and code style: Using C++ STL, Google C++ Style Guide

- Memory Management, including Buffer Pool Management System, Replacement policy: LRU
- Concurrency: implement the Parallel Buffer Pool Manager. [CMU15-445 Project](#) | [Blog](#)

**Skills:** Vulkan , Graphics Pipeline , GPU driver , Game Engines/ Unreal Engine Unity , C#

#### Details. **GPU Architecture/Algorithm Researcher: Huawei Research Lab, Cambridge**

Jun 2023-Present

- 1. Implement and compare Real-time graphics algorithms. Design various tree data structures from literature and self-exploration, visualisation (json) and algorithms, like bfs, dfs, etc. Implement compute shader program for performance optimisation, considering micro-architecture implementation trade-off.
- 2. Hands-on experience on Modelling and setting up Simulation environment. Simulate real-time rendering scene of million triangles. Use of Graphics Analysers for performance measurement, RenderDoc for GPU debugging. Unit Tests from Google Test framework, Python data analysis.
- 3. Consider CPU concurrent implementation using OpenMP, memory synchronisation between CPU and GPU, texture, shader, etc.
- 4. Acquire knowledge from Open-Source library and industry standards. For instance, proper CMake structure, conditional branches using C++ macro for platform-neutral design (Windows, Linux), document class relationship and other details using Doxygen.
- 5. Meanwhile, host series Knowledge-Sharing sessions about my research topic. Prepare detailed and self-contained material. (Presentation slides adding up to 120.) Sharing sessions last around 3 hours in total. Also gain insight from the feedback of participants.

### AI and Data Science (Python)

#### **Artificial Intelligence**

Oct 2022-Present

##### [CS229 Project](#)

- Linear classifiers (Logistic Regression, GDA), Stochastic Gradient Descent, L1 L2 Regularization, SVM.

#### **Computer Vision**

Jan 2023-Present

##### [CS231n Project](#)

- Python, Numpy, kNN, Softmax, SVM classifier, Cross Validation.

### Utility Tools

#### **URL Finder (Web Crawler, Python, Go)**

Apr 2023

Download the web page available at the input URL and extract the URLs of other distinct pages linked to from the HTML source code. [URL Finder](#)

- Data Structure: Lists, Sets; Computer Networking: HTTP request, like get; Synchronous File IO

#### Details **Removal Tools @ Huawei Internship (Linux)**

Mar 2023

Introducing independent full automation tools in the project, reducing error rate to nearly 0% [Tools](#)

- Integration of search, view and delete using Linux System Call ack, vim and sed.
- In addition, there are others Linux system calls integrated, like clear screen.
- Handling Asynchronous operation, like deletion and IO. Following Linux Tool UI and branching design.

#### **Parsing Trace File**

May 2023

Parsing Trace File and generate a unique and sorted list. [Parser](#)

- Java, Trace, Parser, IO

### Frontend, backend

#### **Weather App (UI, Flutter, Group Project)**

April-May 2023

Collaborating with team members on an App integrating weather forecast with daily calendar events. I am responsible for:

- Frontend: Beautiful design with UI components, written in Flutter, with Object-oriented programming.
- Backend: Integration of iCalendar API, asynchronous IO, Computer Networking: HTTP request, get. [Project](#)

## ***C, C++, OOP***

### **Multifunctional Supermarket Management System**

Apr 2022

Using data analysis to accelerate the energy transition and reduce the carbon emissions of the maritime industry.

- Inheritance, polymorphism (Operator Overloading); Read/Write Files, etc [Project](#) | [Blog](#)

### **Typing Game (C & EasyX)**

Dec 2021

A standard keyboard layout, where different modes are provided. [Project](#)

## ***Game Dev***

### **Priest-Beneath (Unity, C#)**

Feb 2023

Unity C# GAME Group Project (2023 Cambridge Game Jam).

- [Project](#) | [Blog](#) | Play with web deployment: [WebGL](#)

## ***Algorithmic Trading***

### **Optiver Go 2023 (C++, Python)**

Mar 2023

Introduction to trading with buy side and sell side. Implement pair-wise trading strategies as an optimal solution.

## **APPENDIX B: REFERENCE**

"During our time working together, I found Peter to be a highly collaborative and supportive colleague who consistently demonstrated a willingness to share his knowledge and expertise with others. Peter's ability to problem-solve complex c/c++ development issues was invaluable, and his commitment to learning and staying up-to-date with the latest advancements in his field is truly impressive. His passion for ray-tracing is contagious, and I have learned so much from his knowledge sharing." Source: [LinkedIn](#)