Peter HU

University of Cambridge | ***Jardine Scholar***
Computer Science Part IA

CONTACT
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LinkedIn | Github | Portfolio

What I really enjoy is the beauty of CS and its application in real life. I am open to new fields of area and enjoy exploring unknown features.

SKILLS

Basic Skill ·C ·C++ ·Java ·OOP ·CMake ·Gdb ·Algorithms and Data Structure ·Functional Programming (OCaml)
Front-End ·HTML/ CSS ·React ·Latex *Back-End* ·Database ·SQL ·NoSQL
Data Sci ·Python ·NumPy ·Machine Learning ·Deep Learning ·Natural Language Processing ·Computer Vision
Graphics ·Vulkan ·Graphics Pipeline ·GPU driver ·Game Engines/ Unreal Engine Unity ·C#
Math ·Calculus ·Linear Algebra ·Discrete Math ·Probability and Statistics ·Abstract Algebra ·Topology (basic)
Operating System Process Scheduling, Memory (Segment, Page, VM), I/O, File, Linux ·bash/shell ·Digital Electronic
Development Tools git (Version Control), CI/CD pipeline, Docker, Visual Studio, VS Code, Pycharm, Github/Gitlab, IntelliJ IDEA.

WORK EXPERIENCE

GPU Software Engineer Huawei Technologies R&D (UK) Ltd, Cambridge *Internship* *Dec 2022- Present*
· C++, CMake, Gdb, Git version control , CI/CD pipeline, CMake, hands-on experience on Linux server, etc.
· Introducing independent full automation tools in the project, reducing error rate to nearly 0%. Tool
· Familiar with 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.

EDUCATION

University of Cambridge *Computer Science, Undergraduate* *Oct 2022- Present*
· *Merit-based, fully funded Jardine Scholarship*

Xiamen University *Software Engineering, Undergraduate(First Year)* *Sep 2021-June 2022*
Top 1 academic institution in Southern China, Double First-class University, Project 985, 211.
· *GPA: 3.91 / 4.0, rank 1 / 173 (first term), 88/100 (overall) · Class Rep, ACM Team training.*

Nanyang Model High School *Sep 2018–June 2021*
· *Physics Rep, Leader of a research project.* · *Awarded ShuPing Scholarship twice*

HONORS AND AWARDS

Gold Medal in UK Tech Arena 2022 with *£7000* [C and C++, Compression, Concurrent] *10 Oct-26 Nov 2022*
Learning and researching from scratch in a month, digesting lots of papers and source code available, like RFC1951, etc.
· Responsible for implementation & improvement of LZSS. Engaging 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.

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 all around the Europe.*

Jardine Scholarship, issued by Jardine Foundation *Feb 2022*
Merit-based, fully-funded Scholarship during my Undergraduate at University of Cambridge

Adolescents' Science and Technology Innovation Contest Third Place [Research] *Apr 2020*
issued by Shanghai Association for Science and Technology, Shanghai Municipal Education Commission
· *Deep research into the phenomenon of tire-locking, including why it may happen and its pros and cons using Force Analysis.*
· *Introduced the Anti-lock braking system into our research by our mentor. Self-made physical simulation test for tire-locking.*

Accepted for Publication Twice [English Essays in Shanghai Student Post] *Oct 2018, May 2019*
· *Topic: Effective Ways to Overcome Obstacle in Study, Campus Life without Snack Stores.*

PROJECTS AND ASSIGNMENTS

Computer Vision *[Stanford CS231n]* Project (Github) *Jan 2023*
· Python, Numpy, kNN, Softmax, SVM classifier, Cross Validation

Machine Learning and Real-world Data *[Cambridge Part IA]* Project (Github) | Blog *Jan 2023*
· Text Classification using ML with improvements, including Naive Bayes classifier, Cross-Validation, NLP, HMM

Artificial Intelligence *[Stanford CS229]* Project (Github) *Oct 2022*
· Linear classifiers (Logistic Regression, GDA), Stochastic Gradient Descent, L1 L2 Regularization, SVM

Database Design Project (C++) *[CMU15-445 Project]* Project (Github) | Blog *Aug-Oct 2022*
· Buffer Pool Management System, Latch, LRU
· Replacement policy. In order to solve the concurrent problem, implement the Parallel Buffer Pool Manager.
· Using C++ STL, Google C++ Style Guide

Computer Graphics (C++, OOP, OpenGL) *[MIT6.837 Assignment]* Project| Blog *Jul-Sep 2022*
· Ray casting, normal visualization, rendering, voxel rendering, super sampling and 3D
· Huge OOP project, with 3D objects, light, camera classes. Building over 20 C++ source files from scratch.
· Composite design pattern for 3D objects class hierarchy with transformation.

Personal Website and Blog https://peterhuistyping.github.io *Aug 2022*
· *Built up from scratch using HTML/ CSS ·Deployed by React to enable high code reuse.*

Multifunctional Supermarket Management System (C++, OOP) Project | Blog *Apr 2022*
· Inheritance, polymorphism (Operator Overloading); Read/Write Files, etc

Typing Game (*C* & EasyX) Project (Github) | Blog *Dec 2021*

INTEREST AND EXTRACURRICULAR ACTIVITIES

Music, Yoga, Gym, Helping others etc. | Society Joined: Ethics in Mathematics | Macro & Micro, Money Banking