

TECHNICAL SKILLS

Prog: 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
System: OS , Arch , Software Engineering, Design Patterns , Security , Digital Electronic
Math: Calculus , Linear Algebra , Discrete Math , Probability and Statistics , Abstract Algebra , Latex , Topology (basic)
Full-stack: Front-End: HTML/ CSS , React , Flutter , Interaction Design , Back-End : Database , SQL , NoSQL
Dev Tools: bash/shell, git, CI/CD pipeline, Docker, VS, VS Code, Pycharm, IntelliJ IDEA.

EXPERIENCE

Research Intern: GPU Architecture/Algorithm Jun 2023-Present
 • New real-time graphics algorithms research. Key developer for simulation framework. Host sharing sessions. [Details](#)

Research Intern: CPU Architecture/Algorithm Jun-Oct 2023
 • Research into CPU Scheduling, DVFS policy, Idle Management, etc in energy-efficient setting.
 • Assist building the task model and estimating power model based on CMOS design. [Details](#)

Software Engineer: GPU Driver Dec 2022-May 2023
 • Workflow of GPU industry, CI/CD, server, Vulkan; Projects on GPU driver and verification, Game Engines (UE4).
 • Introducing independent full automation tools in the project, reducing error rate to nearly 0. [Tools](#)
 @ Huawei Research Lab, Cambridge.

EDUCATION

Computer Science, BA Graduating June 2025
 University of Cambridge, UK 67.5%(Strong Upper Second)
 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

Compression Gold Medal @ UK Tech Arena 2022 10 Oct-26 Nov 2022
 Engineering + Research, digesting papers and source code, like RFC1951, etc.
 • Responsible for implementation & improvement of LZSS. 6-level / concurrent LZSS Compression. [Project](#)
 • C with bitwise operators & hash tables, optimization via branch prediction and concurrency.
 • In a team of 4, leading the team and engaging in pre-processing, serialization with teammates.

Top 2 Team @ Mercuria Hackathon 2022 16 Dec-18 Dec 2022
 Using Python regression for Route-Planning and reduce the carbon emissions of the maritime industry.
 • Networking and collaborating with senior engineers, excellent students from Europe.

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

Third Place @ Adolescents' Science and Technology Innovation Contest 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 & Micro, Money Banking

APPENDIX: FULL LISTS OF INTERESTING PROJECTS

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

System

^ Research Intern (GPU Architecture/Algorithm): Huawei Research Lab, Cambridge

Jun 2023-Present

1. Present a few micro-benchmarks, including Memory footprint, Cache hit rate, etc. Ensure the robustness, e.g., IEEE floating-point precision and Vulkan CTS Watertightness.

2.1 Key developer for simulation framework, real-time millions of triangles renderer (OpenGL, GLSL, ImGui, etc). GPU Debugging (RenderDoc), Unit Tests (Google Test framework), Data Analysis (Python), Performance Measurement (Graphics Analysers), CPU Concurrent Programming (OpenMP), Memory Synchronisation between CPU and GPU (via texture, UBO, SSBO), etc.

2.2 Acquire knowledge from Open-Source library and industry standards. e.g., proper CMake structure, conditional branches using C++ macro for platform-neutral design (Windows, Linux), document class relationship and other details (Doxygen, UML).

Research Intern (CPU Architecture/Algorithm): Huawei Research Lab, Cambridge

Jun - Oct 2023

1.1 Explore and gain knowledge from various papers, dating from 1995, with solid Mathematical Proofs with Definitions, Lemma and Theorems. Use of Optimisation (Duality, Convex, LP, Pareto Optimality from Stanford CVX101), Online Algorithms (with Competitive Analysis), Disjoint Set Union-find, etc.

1.2 Apply Systematic Literature Review (Webster, Watson, 2002). Involve taxonomy (year, topic, institution) and interdisciplinary solutions covering mathematics, algorithm and architecture. Learn related methods, Control Theory (PID), Machine Learning, etc.

2. Set up Simulation platform (event-driven architecture with State Machine) with runtime profiling (performance counter values). Python programming (Numpy, Matplotlib, Networkx, Pandas, DAG, TopologicalSorter, etc).

Compare different algorithms performance advantages and issues. Consider Performance (QoS like Fairness), Energy (Temperature and thermal power), Memory Contention, floor-plan of the chip, applications features and Complexity.

Operating System (MIT 6.S081)

Oct-Dec 2022

Program in kernel mode and user mode of Unix V6 RISC-V multiprocessor

- Implement Unix utilities, System Call. Process Scheduling, Memory (Segment, Page, VM), I/O, File. [xv6](#)

Database Design Management System (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](#)

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.

[URL Finder](#)

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

^ 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.
- 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 in Java. [Parser](#)

C, C++, OOP

Multifunctional Supermarket Management System

Apr 2022

Inheritance polymorphism Operator Overloading

- Read/Write Files, etc [Project](#) | [Blog](#)

APPENDIX: 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](#)