

# Chris Zhang

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## EDUCATION

### Tsinghua University, PRC

Bachelors of Technology in Computer Science and Technology

Sept 2019 - Present

GPA: 3.77/4.0 (84/202)

## PUBLICATIONS

### LuisaRender: A High-Performance Rendering Framework with Layered and Unified Interfaces on Stream Architectures

SIGGRAPH Asia 2022, Journal Track

## PROJECTS

### LuisaRender

Prof. Kun Xu, Tsinghua University

Jan 2022 - Aug 2022

<https://luisa-render.com/>

- Collaborated with 2 undergraduates and 1 Ph.D. candidate on this heterogeneous computing & rendering framework.
- Participated in the design and implementation of the Python-embedded DSL, and solved the problem to invoke C++ functions in Python by utilizing pybind11.
- Solved the problem to compile Python into our DSL by hacking Python's AST.
- Tested and benchmarked the performance of the Python-embedded DSL, with which the C++ counterpart was compared.
- Implemented an IR for auto optimizations.

### Rust-SPPM

Personal Project, Tsinghua University

Apr 2021 - Aug 2021

[github.com/comradez/rust-SPPM](https://github.com/comradez/rust-SPPM)

- Learned Stochastic Progressive Photon Mapping(SPPM) algorithm from the original paper.
- Constructed a photorealistic software renderer with SPPM algorithm in Rust, with anti-aliasing, texture mapping and multi-thread support.

### KatlinDB

Class Project, Tsinghua University

Nov 2021 - Jan 2022

[github.com/comradez/KatlinDB](https://github.com/comradez/KatlinDB)

- Built a database management system in Kotlin with B+ Tree indexing, foreign key integrity constraints, joint primary key support, etc.
- Utilized ANTLR to implement an SQL parser for the database, with techniques learnt in compiler construction course.

### Pastebin

Personal Project, Tsinghua University

Aug 2021 - Present

- Implemented a high-performance online paste and file transfer service in Rust, harnessing async operations to get high performance with tokio and actix-web.
- Deployed the service on my personal server, with open access to my classmates.

## EXPERIENCE

### Bytedance Inc. - Lark Infrastructure

Lark IM Core R&D Engineer, Internship

June 2022 - Present

Beijing, China

- Collaborated with developers from the industry in a codebase with ~1 million lines of code, gained experience and learned the SOP to work together on a big project.
- Migrated multiple modules in the codebase to our new architecture.
- Designed and implemented an auxiliary tool to perform post-migration check to improve code quality, which is widely used by my colleagues in the team.

## LEADERSHIP

### Technical Advisory Board Core Member, Students' Science Association in Department of CS

Sept 2021 - Present

- Worked with classmates to promote innovation and application of class-learned knowledge.
- Proposed the technical draft to set up a student-maintained learning guide website in supplement of course materials.
- Initiated and contributed to the Rust beginner's guide for the learning guide website, providing quick starts for those who are interested.

## SKILLS & AWARDS

**Programming languages:** Rust, C++, Python, Kotlin, Java, C

**ML/AI:** Pytorch, Numpy, Matplotlib

**Language:** Chinese(native), English(112 in TOEFL iBT test)

**Miscellaneous:** Git, Shell, Linux(Server Maintenance), SQL, L<sup>A</sup>T<sub>E</sub>X

**Award:** First Prize in National Olympiad in Informatics in Provinces, 2017

## KEY COURSES TAKEN

### Computer Science:

Computer Graphics, High Performance Computing, Data Structures and Algorithms, Operating System, Principles and Practice of Compiler Construction, Databases, Computer Networks.

### Mathematics:

Linear Algebra, Discrete Mathematics, Probability and Mathematical Statistics, Calculus.