

# Chuan-Chin Lai

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📄 ChuanChinLai

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## TECHNICAL SKILLS

- C/C++
- Python
- Unity
- Unreal Engine 4
- Physics & Mathematics
- Git
- Perforce

## EXPERIENCE

**Tool Programmer**, *Hathos Interactive, Salt Lake City, UT*

*Feb. 2017 – Present*

- C#, Unity, PC Game
- An unannounced title releasing in 2018 ([57-Second Demo](#))
- Designed and implemented user-friendly tools for game designers and QA testers
- Reduced average testing time from hours to minutes after developing a level editor tool ([50-Second Tool Demo](#))
- Automated texture2D builder, reduced average efforts from 10 man minutes to 2 machine minutes

**Gameplay Programmer – Intern**, *Immersed Games, Gainesville, FL*

*Jun. 2017 – Aug. 2017*

- C/C++, Unreal Engine, PC Game, MMORPG
- Fixed an overflow bug by writing unit tests for server and client debugging
- Optimized function and class interfaces to avoid the bug while programming
- Optimized camera-related functions and reduced memory usage by 30%

**Research Assistant**, *Academia Sinica, Taipei, Taiwan*

*Oct. 2014 – Oct. 2015*

- C/C++, Python, Linux, Parallel Programming
- Reduced execution time from days to hours after developing a high performance computing toolkit
- Developed data processing and visualization pipelines, increased working efficiency by 30%
- Solved an astrophysical problem and published research findings in [The Astrophysical Journal](#)

## SELECTED PROJECTS

**LaiEngine & ExampleGame – [GitHub Link](#)**

*Oct. 2017*

- C/C++, Lua, Engine Programming, Memory Management
- Created a 2D game engine including a memory manager, event system, scene system, etc
- Reduced average dynamic allocation time by 60% after developing the memory manager
- Provided fixed-size allocators for quick allocations and garbage collection for memory fragmentation
- Designed and implemented smart pointers for avoiding memory leaks in C++
- Reduced average efforts from minutes to seconds after developing an asset builder with Lua

**Fragmentation (PC) – [43-Second Demo](#)**

*Sept. 2016*

- Python, Physics, PC Game
- Worked as a software engineer in a 6 people team
- Improved player experience by developing physics-related features
- Prototyped and implemented physics related functions, including 2D collision detection and spring oscillation
- Improved 2D collision detection accuracy with AABB collision

**Xmas BASH (PC) – [30-Second Trailer](#) – [Playable Demo](#)**

*Sept. 2016*

- HTML, JavaScript, Web Game
- Worked as a software engineer in a 6 people team
- Designed, prototyped and implemented the game based on specifications provided by designers
- Used [Phaser](#) to improve gameplay features, reduced development time by 60%
- Completed and showed off the rapid prototype on the EAE day

## EDUCATION

**Master of Entertainment Arts & Engineering in Game Engineering**

*University of Utah, Salt Lake City, UT*

*2016 – Present*

- **Teaching Assistant:** C++ for Game Programming (Fall, 2017) and Game Engineering I (Spring, 2018)

**Master of Science in Astrophysics**

*National Taiwan University, Taipei, Taiwan*

*2011 – 2013*

**Bachelor of Science in Physics**

*National Kaohsiung Normal University, Kaohsiung, Taiwan*

*2007 – 2011*