

# MELVIN TAN

Engine and Tools Programmer

www.melvintan.me | Redmond, WA | 425-246-3162 | melvin.tan.yh@gmail.com

**OBJECTIVE** A summer internship in game engine, tools, or pipeline development.

## PROFILE

- 3 years of C/C++
- Passionate engine and tools programmer
- Have built 2D and 3D engines, property editors, reflection systems, and 3D level editors
- Junior in B.S. in Computer Science & Game Design at DigiPen Institute of Technology
- R&D intern in DigiPen Engineering, developing a sprite-based animation system
- Have built four 2D and 3D games using custom engines
- Learn new engines and game architectures quickly
- Cheerful, easygoing, thrive in team environment
- Great at finding and fixing elusive bugs
- Speaks Mandarin
- Hard worker
- Ship on time

## PROGRAMMING

**Languages:** 3 years of C/C++; working C#, HLSL, ZilchScript; basic Java

**Networking:** TCP/IP and UDP using WinSock API, network debugging, multi-threaded applications

**Engines.** Unity, Zero (a proprietary Unity-like engine), ProjectFun, and various custom 2D and 3D engines

**Engine areas.** Data serialization, memory management, reflection, property editors, archetypes, level editors

**Math.** Linear algebra, vectors, matrices, discrete mathematics, quaternions

**AI:** Rule-based system architecture, A\* pathfinding, finite-state machines, steering behaviors, formations

## DIGIPEN GAME PROJECTS

### Objects In Space

Engine Programmer / Tools Programmer

9/14 – present

3D tactical space combat PC game, in C++ (team of 6)

- Tools Programmer, in charge of level editor and content pipelines.
- Built level editor, including property editor functions and an archetype system, for use by designers.
- Built a reflection system to help with editor debug tools, accelerating content generation.
- Integrated serialization/deserialization capability with XML by reading info from reflection system.
- Integrated FMOD (audio pipeline) and AntTweakBar for ease of use.
- Created a powerful logging tool to help with the debug process of the game.

### Hunter Beyond Tokyo

Engine Programmer / Graphics Programmer / Technical Director

9/13 – 4/14

2D single-player side-scrolling action hack-and-slash PC game, in C++ (team of 4)

- Technical Director, responsible for managing all parts of the engine-building process.
- Tutored other members in engine architecture, resource-management, and system communication.
- Architected and implemented all core engine and graphics components from the ground up.
- Implemented 2D graphics using DirectX9 and shaders in HLSL, to enhance combat experience.
- Successfully multi-threaded loading of graphical assets, drastically reducing player wait-time.
- Designed and implemented a templated state-machine system to help AI state implementation.
- Wrote a logger that sped up debugging, using .xml and .xsl.

### n1XT

Graphics Programmer / Lead Designer

1/13 – 4/13

3D single-player third-person fast-paced twitch-reaction PC game, in C++ (team of 3)

- Graphics programmer. Implemented 3D graphics, using DirectX 9 on top of a provided 2D framework.
- Implemented simple physics collision. Layered 3D collision on top of 2D framework.
- Designed, implemented and play-tested clear minimalistic 3D UI.
- Led game design. Created the game concept, prototype, and mechanics.

## EMPLOYMENT

DigiPen Institute of Technology, Redmond WA R&D Programming Intern, DigiPen Engineering

10/14 – present

- Documented functionality for various core engine features.
- Implemented prototypes for research on “Game-within-a-game” systems.

DigiPen Institute of Technology, Singapore, SG Teacher’s Assistant, Computer Science Department

9/13 – 4/14

- **Student Instructor.** Taught weekly CS classes on C++, STL, algorithms, data structures, templates.
- **Teaching Assistant.** Tutored CS, Math, Game Projects, and Game Design for freshmen and sophomores.
- **Grading Assistant.** Graded C and C++ classes for CS majors. Wrote verifier scripts. Graded projects.

## EDUCATION

DigiPen Institute of Technology

B.S., Computer Science & Game Design

2016