

ALVIN TAN

SOFTWARE DEVELOPER

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OBJECTIVE

Eagerly searching for opportunities where I can utilize and develop my problem-solving and analytical skills to implement efficient solutions and to expand my knowledge in the field.

Ever need a software engineer who is willing to learn? That would be **me!**



EDUCATION

(BSc) Computer Science in Real-Time Interactive Simulation | DigiPen SG

SEP 2016 – CURRENT

- Dean 's Honor List – Fall 2018

Software development, real-time simulations and game development

(DipBM) Business Management | Nanyang Polytechnic

APR 2011 – MAY 2014

Specializes in Supply Chain Management



SKILLS

C/C++

- Created game engines from scratch with C/C++ in both 2D and 3D
- Implemented a Memory Manager and ADT such as Binary Tree, AVL Tree and Hash Table
- Knowledge in low-level optimization techniques
 - Implemented a simple square root program using assembly programming
 - Spatial and temporal locality to speed up a program (cache-friendly code)
 - Techniques for optimization – Parallel accumulators, loop unrolling and SSE SIMD
- Implemented multithreaded programs with concurrency knowledge to prevent data race

Python

- Self-taught, able to implement cubic splines and linear regression using Python
- Coded connect4, 2D shooter and an interactive map with the help of NumPy and Pygame

C++/CLI and C#

- Self-taught to help integrate C# as a scripting language in game engine
- Wrote a wrapper to call unmanaged C++ code from C#
- Successfully implemented a Hotel Guest Management System (UWP C# app) in a day.

A.I. / Machine Learning

- Implemented path-finding algorithm such as Dijkstra's algorithm and A* search algorithm
- Implemented kNN Algorithm, Multivariable Linear Regression with Gradient Decent, kMeans and a neural network for XOR problem with multiple weight initialization

CUDA C/C++

- Optimizing code with CUDA programming with techniques with both hardware and algorithms
 - Shared memory (privatization), memory configuration (pinned, unified, texture)
 - Convolution techniques and parallel computation algorithms (reduction/scan)

Network Programming

- Socket Programming (Winsock – TCP/UDP)
- Implemented server/client application for file transfer and network game application with cheat prevention protocol such as Lockstep protocol and Bucket sync

Other APIs

- OpenGL for 2D and 3D graphics programming and techniques for real-time rendering
- ImGui/AntTweakBar for GUI based program

Misc.

- Operating System – Windows / Linux
- Environment – Cygwin / Visual Studio / Visual Studio Code
- Source Control – Git/SVN
- Unity – Game Development



PROJECTS

Scrap Mettle | Game Project Year 3 | Winner – Game of the Year (2nd)

- Tools development and integration for game engine
 - Command System Framework, Modular Performance Profiler, Collapsible Logger
 - Integration of AngelScript and C# (Mono) as scripting language

CUDA Fractals | GPGPU Project (On GitHub)

- Successfully implemented fractal algorithms with CUDA programming

Adventure Learn | SIT Project | Winner – Best Visual and Software Architect

- Prototype platform that tracks student's progression in relation to their learning traits
- Gamification of a survey application

Manawa | Game Project Year 2

- Revamped and optimized game engine architecture to reduce coupling within systems
- Created tools for designers (undo-redo, multi-select and other QoL tools)



EXPERIENCE

Blockchain Engineer Intern | Fissionworks | SGInnovate Summation Programme

MAY 2019 – CURRENT

Build blockchain applications in Go using Tendermint

Teaching Assistant | DigiPen SG

SEP 2017 – CURRENT

Held lab sessions for programming and game project modules and grading of assignments

Sea Freight Intern | DHL

SEP 2013 – OCT 2013

Assisted and shadowed in the daily operations of a Sea Freight senior employee such as handling invoices and processing them into the system