Nathan Lacey

Software Engineer

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Objective

A graduate with a Bachelors of Science in Game Programming who is looking to build a long-term career in the Games Industry. Looking for employment that offers opportunities of personal growth that would allow me to widen my skill set into all aspects of game programming.

Skills

Languages	**C++/C, C#**
Engine/API	**Unreal Engine 4 (C++, Blueprints, Behaviour Trees), Unity, DirectX11**
Proficiencies	**Physics (Custom C++ Engine), Networking (winsock, asio, Unity)**
Tools	**Protobuf, XML, JSON**

Personal Projects

Tüdey Physics, 2D C++ Physics Engine January 2018 - July 2018

- Convex Polygon collision detection and resolution using SAT
- Implemented physics constraints using Jacobian Matrices
- Created collision channel system inspired by Unreal's collision system
- Optimized collision detection through broad and narrow phase detection
- Developed extendable generic collider system
- Implemented a collision behaviour system that allows the game application side to implement custom behaviours on collision enter, stay, and exit without having to touch collision code directly
- Added serialization to easily work with saving, loading, and sending information through networking
- The engine uses a custom 2D math library

Graphics Engine, DirectX11 and C++ October 2016 - January 2018

- Created a graphics wrapper library for Direct3D features
- Implemented Networking with Winsock, UCP/TCP
- Implemented Entity-Component System
- Developed a meta-reflection system

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Team Projects

The Gauntlet Prismatic, First Person Action, Unreal Engine 4 Sep 2017 - June 2018
Lead Tools Programmer

- Solely responsible for procedural map generation system
  - Data driven, easily customizable map generator
  - Used Marching Squares for determining vertex and index information
  - Used Catmull-Rom Splines for curved walls
  - Determined vertices, indices, normals, and UVs for map
  - Fills map with a mixture of procedural generation and designed sections
  - Places instanced static meshes around edges of map
- Created architecture for generic player action system
- Implemented Behaviour Trees and Animation logic for a melee/ranged AI unit

Castle Guard, First Person VR Tower Defence, Unreal Engine 4 Dec 2017 - April 2018
AI/Gameplay Programmer

- Created generic spline pathing system for game AI
- Implemented data driven AI spawning system
- Optimized bow and arrow gameplay features

Wombat Combat, Online Multiplayer Card Game, Unity Nov 2016 - July 2017
Lead Programmer

- Created strategy card gameplay systems
- Implemented networking functionality
- Worked on card effect system

Education

Bachelor of Science in Game Programming (Honour Roll) June 2015 - Sep 2018
LaSalle College Vancouver

Relevant Courses
Concurrency & Parallel Processing, Animation for Games, Network Programming, Gameplay Programming, and Artificial Intelligence

Work Experience

Programming, Math, and Physics Tutor/Teacher's Assistant September 2017 - June 2018
LaSalle College Vancouver