KHOA VAN NGUYEN
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EDUCATION

University of California Los Angeles, California
B.S. in Computer Science GPA: 3.90

PROJECTS

- **Ocean model:** A height field water simulation using Gerstner waves and flow mapping. Wave sizes, heights, and directions are customizable in real time.
- **Interior mapping:** HLSL/Cg shader to render a 2D plane as a 3D building with detailed interior and cubemap reflection. Each room in the building has randomized lighting conditions and textures.
- **Fish flocking:** A multithreading flocking AI algorithm for large schools of fish with high frame rate. Varied swim cycles for fish were achieved through vertex manipulation and GPU instancing.
- **Upheaval:** A third-person 3D puzzle-platformer in Lumberyard. Online Q-learning AI adapts to player's behavior and becomes more aggressive as the game progresses.
- **Analysis of independent video games on Steam platform:** Factors which affect sales and reception. Data collected with a Python web scrawler was evaluated using principal component analysis.
- **Explode! with Friends – Group project:** A 2-player augmented reality game for Android using Unity. In charge of surveying Vuforia API and feature feasibility.
- **Moonflower:** A Unity stealth game with behavior trees for AI and a focus on animation. Assets and scripts were optimized for low-end graphic cards.
- **Submarine Game – Group project:** A WebGL game developed from the ground up. In charge of particle system, 3D model pipeline, and oriented bounding box collision detection.

SKILLS

- Game engines:
  - CryEngine / Lumberyard: gameplay scripting in Flowgraph and LUA; AI scripting in C++ and LUA: modular behavior trees and online Q-learning.
  - Unity: animation with Mecanim; AI scripting using RAIN Artificial Intelligence; augmented reality on smartphone with Qualcomm's Vuforia API.
- Proficient in C++.
- Prior experience with WebGL, Python, LUA, C, C#, Java, JavaScript, HTML, CSS, OCaml, Processing, MySQL, Matlab.

RELEVANT COURSEWORK

CS118 – Computer Network Fundamentals
CS130 – Software Engineering
CS131 – Programming Languages
CS143 – Database Systems
CS144 – Web Applications
CS161 – Fundamentals of Artificial Intelligence
CS170A – Mathematical Modeling and Methods for Computer Science
CS174A – Introduction to Computer Graphics
CS180 – Introduction to Algorithms and Complexity
CS188 – 3D Real-time Animation
CS188 – AI Learning Games