Omar A. Zohdi

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EDUCATION

DEPAUL UNIVERSITY — Chicago, IL
Master of Science in Computer Science – Computer Game Development — January 2013 – March 2015

- Senior Project: Built a generalized Oculus Rift SDK wrapper for DePaul's Internal Engine, Azul using C++.
- Contributed to the "For the Records" Transmedia Project by developing a JavaScript game.
- Relevant class work includes: Managing Globally Distributed Systems, Game Performance Optimization, Parallel Algorithms, Cognitive Science, and Programming Design Patterns.

UNIVERSITY OF MODERN SCIENCE AND ARTS — Cairo, Egypt
Bachelor of Science in Computer Science — September 2006 – June 2010

- Senior Project: Built a basic 3D Physics framework for XNA using C# – including rigid body dynamics and collision detection.
- Relevant class work includes: Software Design Methodology, Computer Networks, Computer Graphics, Multimedia Programming in Java, and Human-Computer Interaction.

PROFESSIONAL EXPERIENCE

PLAY 4 CHANGE LAB (DEPAUL UNIVERSITY) — Chicago, Illinois / Remote
Game Programmer — January 2015 – present

- Developed a third person serious game designed to teach strategies to overcome anxiety by drawing heavily on metaphors. Using Unity 5.x.
- Defined main code architecture and coordinated with artists for standardized asset pipeline.
- Built main systems used by gameplay developers including an audio manager and text parser both used to create a dialogue system. The system also supports a basic form of triggers to initiate desired events in game.
- Optimized code base for faster and more stable runtime across different platforms (Web, Mac and Windows).

DEPAUL UNIVERSITY — Chicago, Illinois
Research Assistant – Lead Software Engineer — August 2015 – July 2016

- Expanded the TraceLab open source project adding requested features, configuring development environments and fixing known issues from previous development cycles.
- Ported The TraceLab project to an ASP.NET environment for use as a web service over a local or remote server.
- Wrote the TraceLab documentation and managed other software engineers to maintain the same standards throughout the development cycle. Also assisted PhD students with technical support for TraceLab in their research.
- Built a persona threat modeling multi-user web application for the Department of Defense using the MEAN Stack.

DEPAUL UNIVERSITY — Chicago, Illinois
Graduate Assistant — September 2013 – March 2015

- Taught undergraduate and graduate students how to implement data structures and algorithms.
- Instructed undergraduate students on linear algebra for 3D graphics and gameplay programming courses.
- Assisted gameplay students in learning development best practices in Unity3D and school's internal game engine, Azul.

NAUBA (NEW ENERGY S.R.L.) — Milan, Italy
Web Developer — May 2011- August 2012

- Developed multiple e-commerce websites based on client's needs using the Magento framework.
- Worked both as a backend and frontend developer; making use of both client and server side languages including HTML, JavaScript and PHP.
- Contributed to usability design of websites' functionality.

TECHNICAL OVERVIEW AND SKILLS

PROGRAMMING LANGUAGES: C++, C#, Java, HTML, CSS, JavaScript, Python, MySQL and PHP.
APIS & LIBRARIES: ASP .NET, KineticJS, JQuery, MEAN Stack, XNA, OpenGL, LibOVR and OpenCL.
DEVELOPMENT TOOLS: Unity 5.x, VS15, Eclipse, NetBeans, and Siebel CRM
VERSION CONTROL: Git, SVN, and Perforce.
SPOKEN LANGUAGES: Italian (fluent), English (fluent), French (basic) and Arabic (Egyptian - fluent).

RELEVENT PROJECTS AND CLASSWORK

FOR THE RECORDS – PERFECTION
Silver Medal at International Serious Play Awards 2014

JavaScript

- Determined and constructed game architecture and code design making use of the JavaScript library KineticJS.
- Optimized code for faster and more stable execution across major browsers (Chrome, IE9 and Firefox).
- Iterated through gameplay mechanics with designers input to stay true to the game's message.

CODE OPTIMIZATION
C++

- Developed a variable and fixed size block allocator & heap-based memory system.
- Optimized a prebuilt large particle system from 1200ms to 10ms per update.
- Updated a prebuilt math library to use SIMD for faster math computation.
- Built a load-in-place memory system as a method of avoiding allocation overhead at runtime.

OO DESIGN PATTERNS AND PROGRAMMING
C#

- Built the game space invaders from the ground up and designed it using more than 10 modern object oriented design patterns.
- Made the game scalable by building different systems including a collision system, resource manager and event queue.
- Built documentation for the project including diagrams and other informational data to improve project maintainability
- Discussed and defended the various approaches and design taken in the project with other students over the course of the project's duration.

OCULUS RIFT (DK1) WRAPPER
C++

- Integrated the Oculus rift SDK (DK1) with the school's internal engine, Azul, using an Adaptor pattern to minimize changes on the engine side.
- Designed the architecture of the VR Adaptor to simplify the process of prototyping quick VR solutions on most Azul projects.
- Integrated Stereoscopic Rendering and Motion Tracking using OpenGL off screen rendering and OVR head motion tracking library respectively.

GAME ENGINE DEVELOPMENT
C++

- Built custom libraries, including a math library and memory system and file I/O library.
- Implemented a custom hierarchy system, using different data structures, for model import and asset management.
- Developed a 3D Model archiver, importer and scene renderer and extracted model data for real time rendering
- Created an Animation system to read and interpret the animation data from the imported model and animate it in real time.

PHYSICS
C++ & C#

- Built a rigid body dynamic system for 3D objects in Xna on both the PC and Xbox360.
- Implemented a terrain movement and collision in Xna from height-map generated terrains.
- Worked with Box2D to recreate the game Angry Birds from the ground up.
- Designed and built various physics related features including; particle systems, and collision response.