Milpitas, CA
1-(540)-460-6869

MICHAEL KELLY

m.kelly.devv@gmail.com
mkellydevv.github.io

EDUCATION

Fairfax, VA   **George Mason University**   **Aug 2008 – May 2015**

- *Completed 106 credits towards a* BS in Computer Science
- Coursework Highlights: Data Structures, Analysis of Algorithms, Database Concepts, Visual Computing, Data Mining, Formal Methods & Models, Numerical Methods in Engineering, Software Reqs. & Design Modeling

SOFTWARE PROJECTS

Online Platform Game   **Jan 2019 - Present**

JavaScript, Node JS, Pixi JS, Express, Heroku, Git

- Developed a 2D platform game and engine using object composition techniques playable via a web browser.
- Implemented engine features such as: Authoritative Client-Server Architecture, Trigger/Condition/Action System, Finite State Machine AI, and various Broad/Narrow phase collision culling and detection techniques.
- Incorporated the Pixi JS rendering library to create a camera capable object tracking and parallax layers and an asset loader to load level data from JSONs.

Mobile Ready Portfolio Website   **March 2019**

JavaScript, Bootstrap, jQuery, Git

- Developed a personal portfolio website that reflows based on the size of the users viewing device.
- Implemented a Parallax Stack script that allows for fine-tuning how fast each section in the DOM will parallax into the next section.
- Designed the script so that it can be easily imported into existing projects.

Online Tile Map Editor   **May 2018 - Aug 2018**

JavaScript, Node JS, Pixi JS, Express, Bootstrap, jQuery, Heroku

- Designed a tile map editor that game developers can use to create 2D tile based levels accessible via browser.
- Utilized an auto-tile algorithm that determines the shape of fill tiles and the border masks/overlays required.
- Implemented layer scaling, offsetting, and parallax directly into the editor to decrease level development time.

Vector Graphics Animator   **June 2016 - July 2016**

C++, FLTK, OpenGL Visual Studio, Git

- Created a program where users can create animations using vector graphics and frame tweening.
- Implemented a scene graph data structure which is a node tree where each node holds a vector polygon and pointers to its sub-nodes; transformations are applied to a node and all its sub-nodes.
- Designed so that any frame where a transformation occurs becomes a key frame and intermediate frames are linearly interpolated during playback.

Subdivision Surface Modeler   **June 2016 - July 2016**

C++, FLTK, OpenGL, VIsual Studio, Git

- Built a program that refines polygonal meshes using a derivation of the Catmull-Clark subdivision technique as it applies to quadrilateral faces.
- Implemented a random height field generator and prefabricated polyhedral objects to test the algorithm.

LANGUAGES AND TECHNOLOGIES

- Languages: *(Proficient)* JavaScript, C++, HTML/CSS; *(Familiar)* C#, Python, Java
- Technologies: *(Proficient)* Visual Studio, Git; *(Familiar)* Unity, OpenGL, SSH, UML, Matlab, WEKA
- Web Technologies: *(Proficient)* jQuery, Bootstrap, Express, Node JS, Socket.io, Pixi JS; *(Familiar)* React, Redux, MongoDB, MySQL