Michael Kelly

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SKILLS

Languages: JavaScript, Python, C++

Other: Git, Heroku, NodeJS, Docker

Frontend: HTML / CSS, React, Redux, ChakraUI, Formik, BootStrap, jQuery

Backend: PostgreSQL, Express, Sequelize, Flask, SQLAlchemy, AWS S3

PROJECTS

Jaunts | *(React, Redux, PostgreSQL, Flask, SQLAlchemy, Selenium, AWS S3, Mapbox API)*   **live** | **github**
- Integrated **Mapbox API** to display trail route data and for user functionality such as dragging and dropping photos where they occurred on the trail.
- Utilized **Selenium** and **Chrome WebDriver** to scrape information from the web for unparalleled, realistic seed data.
- Leveraged **AWS S3** for user photo storage to optimize server load and routing.

Sketch It | *(React, Redux, PostgreSQL, Sequelize, Express, Node, PixiJS)*   **live** | **github**
- Incorporated the **PixiJS WebGL** library to render user drawings in real time.
- Reduced **PostgreSQL** data usage through efficient storage of image data into flattened cartesian arrays.
- Provided security to user accounts through authenticated routes and **Bcrypt** password hashing.

Fox Forest | *(Express, Node, PixiJS, Socket.io)*   **live** | **github**
- Developed a 2D platform game and engine written in pure **Javascript.**
- 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 **PixiJS** rendering library to create a camera capable object tracking and parallax layers, and an asset loader to load level data from **JSON**s.

Tiledit | *(jQuery, Express, Node, PixiJS)*   **live** | **github**
- Designed a tile map editor that game developers can use to create 2D tile based levels.
- 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.

Scratch.io | *(React, Redux, PostgresQL, Flask, SQLAlchemy, Chakra, Formik, WTForms)*   **live** | **github**
- Engineered an extensive **RESTful API** back-end that maximized the precision of queries made from the front-end.
- Spearheaded data validation and entry using **Chakra** and **Formik** on the front-end and **WTForms** on the back-end.

Remember the Whey | *(Pug.js, PostgreSQL, Sequelize, Express, NodeJS)*   **live** | **github**
- Rapidly prototyped a front-end using the **Pug** templating engine to create a pixel perfect clone of RememberTheMilk.com
- Introduced an enhanced **UX** through intuitive drag and drop features, data entry, and additional animations.

Vector Graphics Animator | *(C++, FLTK, OpenGL)*   **github**
- 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.

EDUCATION

George Mason University - *BS Computer Science (106/120 credits), 2015*

AppAcademy - 1000+ Hours Full-Stack Web development course with <3% acceptance rate, 2021