







## About the Project

---

Kai 'Opua is a science fiction builder / puzzle game, in which the player assumes the role of a simple boy named Iki. Iki is stranded on a moon sized whale-like creature named Kai 'Opua, who is sick and needs help to return to health. The game is accessible and playable via website, and will not require any third party plug-ins or software beyond the web browser of player's choice.

The aim of the project is to create a universal design education tool, primarily targetted at players of both genders of ages 10 - 14, to teach them to better understand grid, spacing, order, modularity, and efficiency within design. Tangentially, also about Hawaii!

### Technology

---

HTML5  
CSS3  
Javascript  
WebGL

### Libraries (*code*)

---

Modernizr  
jQuery  
SignalsJS  
ThreeJS

#### Assets

|          |     |                        |
|----------|-----|------------------------|
| External | 14% | <div><div></div></div> |
| Original | 86% | <div><div></div></div> |

## Location

---

source code: [github.com/collinhover/kaiopua](https://github.com/collinhover/kaiopua)  
website: [collinhover.com](http://collinhover.com)  
email: [collinhover@gmail.com](mailto:collinhover@gmail.com)

## Thesis Committee

---

Seiji Ikeda

assistant professor, art + art history

Robert Hower

professor & chair, art + art history

Tuan Ho

assistant professor, art + art history

Vassilis Athitsos

assistant professor, computer science

## Contributors (*so far*)

---

Collin Hover

author

Ian Wilson

modelling & animation assistance

Kevin Ly

modelling & animation assistance

Houston Hardaway

modelling & animation assistance

Joshua Wilson

modelling assistance

Amanda Nicole East

visualization assistance

## fn(); Source Code

<sup>1</sup> See <http://www.gnu.org/> for more information on the GNU project.

This is a physical copy of the thesis in its original format: code. Though the most recent version can always be found at the url listed on the facing page, this is it as of April, 2012, including all comments. As the project is intended to be open source, it is released under a GNU General Public License<sup>1</sup>. The point is to ensure that everything used to build this project, as well as the results of the project itself, remain open and free to anyone who wishes to use it to learn, educate, or play. From the license:

“The GNU General Public License is a free, copyleft license for software and other kinds of works. The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users.”

<sup>2</sup> See [codecademy.com](http://codecademy.com) for a great way to learn more about Javascript.

The project is specifically designed to only require technology native to a browser: HTML, CSS, and Javascript. For those that are unfamiliar with these three, within a website HTML is the bones, CSS the skin, and Javascript the muscles, organs, nerves, and brain. HTML and CSS are not programming languages, they are markup languages used for structure and layout. They lack variables, functions, logical evaluation, iteration, and recursion, among other elements. Javascript<sup>2</sup> is a dynamic programming language (not to be confused with Java!) that is at its core prototype-based, with support for object-oriented, imperative, and functional programming styles. It is, relative to other choices in languages for the web, both enjoyable and frustrating to work with. It affords an author an incredible level of flexibility in problem solving, but that same flexibility can make finding bugs a nightmare.

I hope the following helps!















