

RICH PLASTOW

This multiplayer HTML5 **serious game** combines a **custom 3D framework** with an advanced **business simulation**, to provide a fun and social learning tool for **Diageo** staff.

CASE STUDY **Bar Sim Game**

CLIENT **Diageo**

LAUNCHED **May 2017**

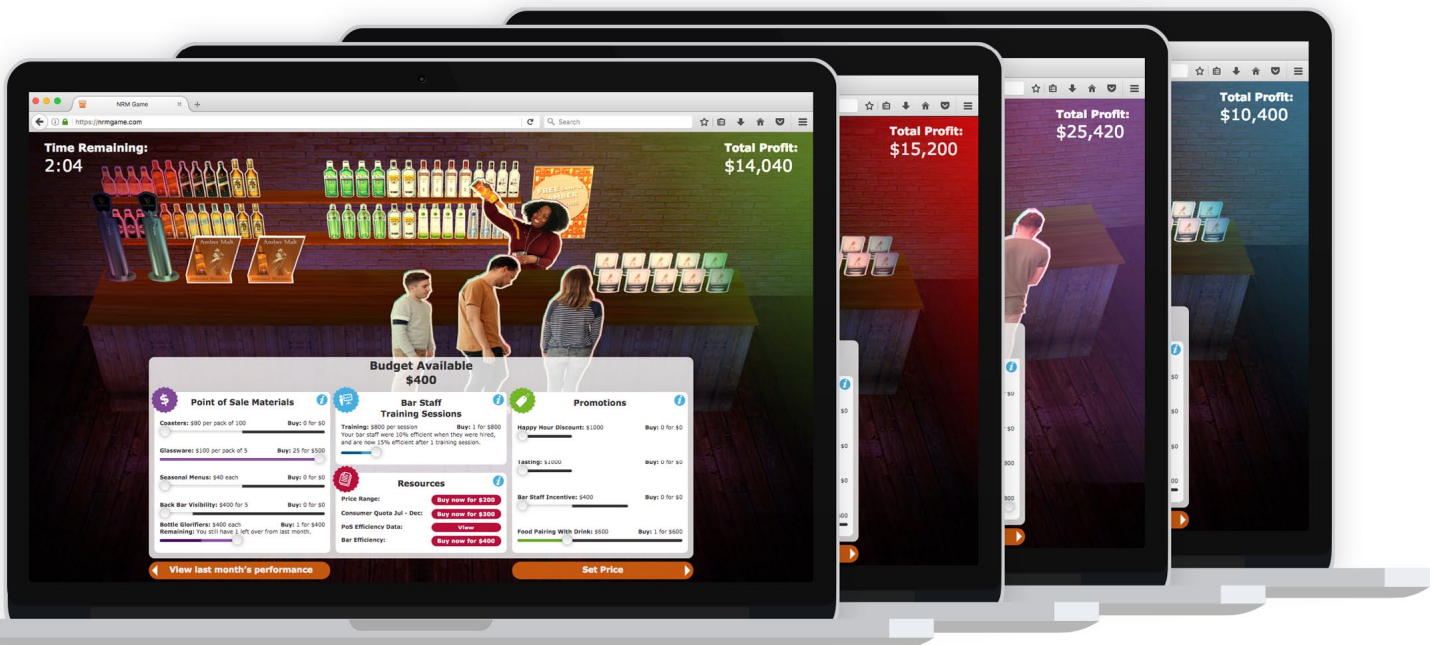
SKILLS

HTML5 GAME DEVELOPMENT SIMULATION DEVELOPMENT MULTIPLAYER GAME DESIGN
GRAPHIC DESIGN UX DESIGN PHOTOGRAPHY IIS WINDOWS SERVER BALSAMIQ GITHUB
NODE THREE.JS JQUERY MYSQL PHP JAVASCRIPT ES6 HTML CSS

Bar Sim Game was designed to reinforce learning during a two-day training course. It's played by four teams of three people, where each team has a laptop and controls the marketing budget of a **simulated bar**. The goal is to maximise end-of-year profit, with help from a facilitator who can monitor their progress in real time.

An outline for the game mechanic and learning objectives had been agreed before I came on board. I produced a detailed **functional spec** and **wireframes**, wrote all of the code, and worked with the client's art director on graphic design and photography.

I created a custom framework on top of **Three.js**, which allowed us to create the 3D bar scene very quickly, and add real photos of Diageo's staff drinking at the bar! I also built a **custom business simulation**, which models bar staff and customer behavior, footfall and stock levels, to realistically calculate sales and profit.



Developed during this project

FLATLAND For high performance **animated 3D scenes**, with optional **physics**, **shadows** and **focus**
SIMULATION Each minute is simulated, using a repeatable sequence of **seeded random numbers**
DUMPSTA An **ASCII interface** helps visualise and balance the game's **simulation** dynamically
ZIPGRADE **Automated deployment** to staging and production servers, using **GitHub webhooks**
OOMAKE Transpilation, concatenation and minification of **JavaScript 2015 (ES6)** source code
ES-SWITCH Switch between **source ES6**, **concatenated ES6**, **transpiled ES5** and **minified ES5**

Find out more...

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RICH PLASTOW

Cell Survivor is a **retro-style online game**. It's fun to play but also carries a serious message, and has helped to raise awareness of HIV among young people around the world.

CASE STUDY **Cell Survivor**

CLIENT **AIDS Alliance**

LAUNCHED **December 2014**

SKILLS **HTML5 GAME DEVELOPMENT** **GAME DESIGN** **GRAPHIC DESIGN** **UX DESIGN** **ILLUSTRATION**
BRAND & VISUAL IDENTITY **RESPONSIVE LAYOUT** **CROSS-PLATFORM** **LAMP SERVER**
GITHUB **PHASER** **GOOGLE TRANSLATE** **PHP** **COFFEESCRIPT** **HTML** **CSS**

Brighton-based charity **AIDS Alliance** needed an impactful, social media savvy way of reaching teenage boys, as part of their campaign for World AIDS Day.

I was given complete creative freedom but limited time and budget. I devised a simple but **unique game mechanic**, inspired by the body's immune-defence system, and went on to design and build a game which balances **education and entertainment**.

In **Cell Survivor** you play a cell nucleus which can defend itself from HIV and other infections using condoms and antiretroviral pills. Each level introduces a new defensive technique, applicable in the game and also the real world.



Project lifecycle

- PITCH** I put together the pitch, including **PSD mockups** and **target audience analysis**
- MECHANIC** A unique circular take on **'Breakout'**, inspired by receptors on a white blood cell wall
- ARTWORK** I used **Photoshop** to create all sprites and graphic elements from scratch
- BRAND** Re-imagined the client's brand as a **1980s arcade title**, like Konami or Atari
- BALANCE** **Weighted each level** to keep it challenging without alienating inexperienced players
- MAINTENANCE** I run and maintain the **'high scores' server**, and test the game on a monthly basis

Maximum reach

- RESPONSIVE** Icons position themselves depending on landscape or portrait **orientation**
- MULTILINGUAL** Uses **Google Translate** to switch between 100 languages, from Albanian to Zulu
- BROWSER** Tested on IE11, Edge 13+, Firefox 12+, Chrome 15+, Opera 15+, Safari 6+
- PLATFORM** Tested on Windows XP+, OS X 10.6+, Android 4.4+, iOS 4+

Find out more...

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Launched at Brighton Digital Festival, **Looptopia** combines a range of new technologies including **WebGL**, **WebSockets** and **Web Audio** to deliver otherworldly musical experiences.

CASE STUDY **Looptopia**

CLIENT **Loop.Coop**

LAUNCHED **September 2014**

SKILLS

PROJECT MANAGEMENT GRAPHIC DESIGN VISUAL IDENTITY UX DESIGN SOUND DESIGN
WEB APP DEVELOPMENT FULL STACK JAVASCRIPT RESPONSIVE LAYOUT GITHUB MONGO
NODE METEOR FOUNDATION HANDLEBARS HTML LESS CSS JAVASCRIPT
JQUERY X3D WebGL WEBSOCKETS WEB AUDIO

Looptopia is a strange and beautiful web app where you can sculpt music visually, jam in real time with other users, and immerse yourself in a vast 3D soundscape.

This project provided a unique opportunity to explore **cutting edge web technologies** on the server and in the browser. The **Meteor** framework allows thousands of users to collaborate on a shared collection of documents, with **live push-updates** to clientside HTML when data changes. **X3D** uses an HTML-like syntax to represent a 3D scene. By hooking X3D up to Meteor, I was able to create a **reactive multi user environment** which can scale without losing performance.



App architecture

- SERVER** The backend is written in **JavaScript**, running on a **Node server**
- DATABASE** Data is stored as **JSON objects** in **Mongo**, a high-performance **NoSQL** database
- METEOR** Much code actually runs on server *and* client, with communication via **WebSockets**
- PACKAGES** Looptopia uses **Iron Router**, **X3DOM**, **Moment**, and many more **NPM packages**
- X3DOM** A JavaScript implementation of **X3D**, the W3C's successor to VRML

Special features

- INTERACTIVE** Elements in the 3D scene react to user activity by animating and playing music
- COLLABORATE** Users can modify the 3D world, and modifications are **immediately seen by all users**
- GENERATIVE** The 3D landscape evolves according to a **semi-random algorithm**
- ARCHIVED** All modifications are **permanently recorded**, for 'undo' history and audit trail

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A web app I built with **Node, Mongo** and **jQuery** which was the centerpiece of a ten week promotional campaign. By the end, **150,000 users** had registered and designed a dream holiday.

CASE STUDY **Dream Vacation**

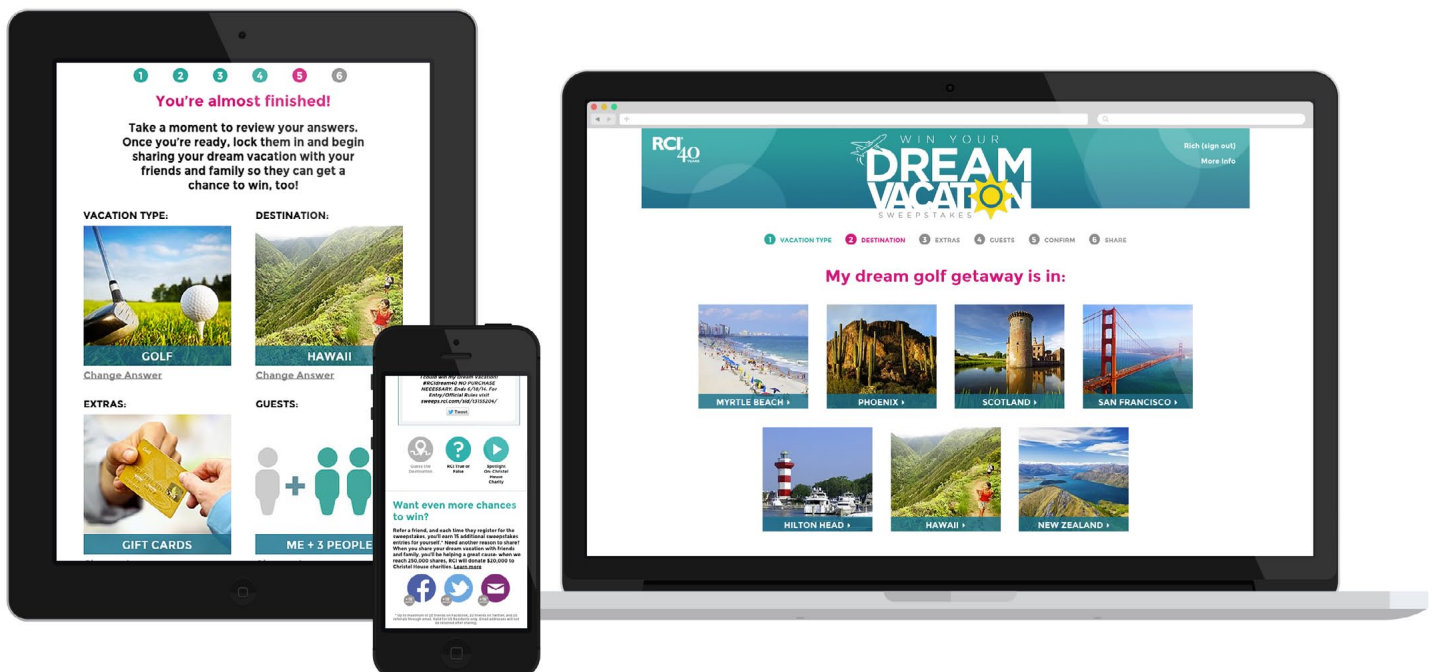
CLIENT **RCI**

LAUNCHED **April 2014**

SKILLS **WEB APP DEVELOPMENT** **FULL STACK JAVASCRIPT** **DATA SECURITY** **SERVER PERFORMANCE**
SERVER ADMIN **RESPONSIVE LAYOUT** **ANALYTICS** **GIT** **GRUNT** **JSDOC** **MONGO** **NODE**
FACEBOOK API **TWITTER API** **EMAIL API** **CUSTOMER FEEDBACK** **EXPRESS** **MUSTACHE**
HTML **LESS** **CSS** **JAVASCRIPT** **JQUERY**

To celebrate their 40th anniversary, US travel agent **RCI** ran a competition over ten weeks and gave away 40 holidays. Users were encouraged to invite thier friends to enter the competition using in-app **Facebook**, **Twitter**, and **Email** integrations. The app tracked each invitation, and rewarded users when one of thier invitees registered.

I was provided with **wireframes**, artwork and a **functional spec**. I built and deployed the app, **tuned its performance** during the campaign, and compiled **analytics** results.



App architecture

SERVER The backend's written in **JavaScript**, running on a **Node** HTTPS server on a **CentOS** box
DATABASE Data is stored as **JSON objects** in **Mongo**, a high-performance **NoSQL** database
ROUTER Advanced server-side routing and request handling is provided by **Express**
TEMPLATING The app uses **Mustache**, a template syntax for injecting content into static **HTML**

External APIs

FACEBOOK **Facebook's Graph API** is used to send invitation messages to users' Facebook friends
TWITTER Users can **tweet an invitation** on their Twitter feed at the click of a button
EMAIL The app uses the **Nodemailer** package to send invitations to users' email contacts
PROMOTION A service called **HelloWorld** records competition entries over a secure connection
FEEDBACK Comments and customer satifaction scores are collected from an **OpinionLab** popup
ANALYTICS App usage is tracked with **micro-conversion tracking tags** and **Google Analytics**

Find out more...

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I developed a suite of **custom WordPress plugins**, along with a **custom WordPress theme** based on **Bootstrap**, to create this lightweight, easy-to-update, **responsive website**.

CASE STUDY **Broo**

CLIENT **Arms Around The Child**

LAUNCHED **November 2013**

SKILLS

WEB DEVELOPMENT **UX DESIGN** **SEO** **ANALYTICS** **ACCESSIBILITY** **RESPONSIVE LAYOUT**
SERVER ADMIN **WORDPRESS** **BOOTSTRAP** **JQUERY** **PHP** **JAVASCRIPT** **HTML** **CSS**

Arms Around The Child raises funds for projects in India and Africa to help lift children out of poverty. **Analytics** indicated that donations at **armsaroundthechild.org** were increasingly being made using tablets and mobile devices, so we chose to rebuild the site from the ground up, using **responsive techniques**.

The Creative Director at **Kandi Media** designed the new site, providing visuals in PDF format. I reworked the visuals for three screen widths: desktop, tablet, and mobile. From these I built 'broo-aatc', a **WordPress** child theme which extends 'broo-base', a general purpose parent theme I had developed in early 2013.



Developed during this project

- BROOLANG** **Language and locale** tools, for maintaining US and UK versions of the site
- BROOSHARE** Dynamic **social media buttons**, including Facebook Like and Twitter Tweet
- BROOSLIDE** An **image slider** based on Bootstrap's carousel component
- BROOMAX** A modified Bootstrap carousel which dynamically fills all available window space
- BROOPOP** A variable-column gallery with popup Bootstrap **modal dialogs**

Best practice

- FUTURE PROOF** Extensive use of **plugin hooks** for hassle-free WordPress upgrades
- CLEAN CODE** HTML, CSS and JavaScript source files are properly **indented** and well **commented**
- COMPATIBILITY** Tested on all modern **browsers and devices**
- ACCESSIBILITY** Includes CSS for **screen readers** and **visually impaired** users

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