LociAI.com

Evan Daniel
@ **evandaniel.com**

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Abstract

LociAI is a site that generates mnemonic images and places them in a 3D environment. Link: **https://lociai.com**

LociAI.com is a web app I developed independently to help users memorize information. The name is derived from The Method of Loci — a memorization technique (also known as "memory palaces") — and AI. The site generates images and 3D environments based on user input.

On the left, users create a floor plan for a building that will house their memories. To the right, users create visual mnemonics of what they want to memorize. They first enter textual information of what they want to memorize, then a description of visual imagery that they associate with it. Pictured are my mnemonics for philosophers mentioned in Paul Guyer's A History of Modern Aesthetics.

Users then navigate the environment they've created. When they come across their mnemonics, they recite them by typing in the text. Anecdotally, I have found this experience to be highly effective. I had been trying to use the Method of Loci for about a decade before creating the app, and had never been able to use it effectively before. I've found using the app to be both fast and fun for memorizing arbitrary information.

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The code for the site was written from scratch. I began with a blank world in Three.js, and then created a simple physics engine to allow for rotation, translation, and to prevent movement through objects. I then created a UI for creating floorplans, using local storage to persist them using classes, and generating them on-the-fly in Three.js. The most complex infrastructure was handling images. The image generation leverages the popular OpenAI Dall-E 2. To save images, I used the bleeding-edge Origin Private File System, and these are applied to 3D objects as textures.
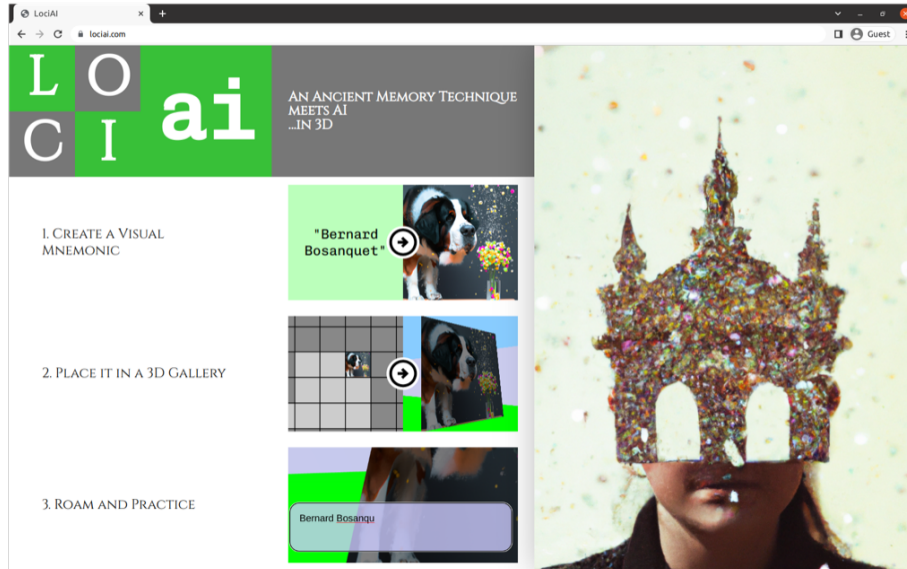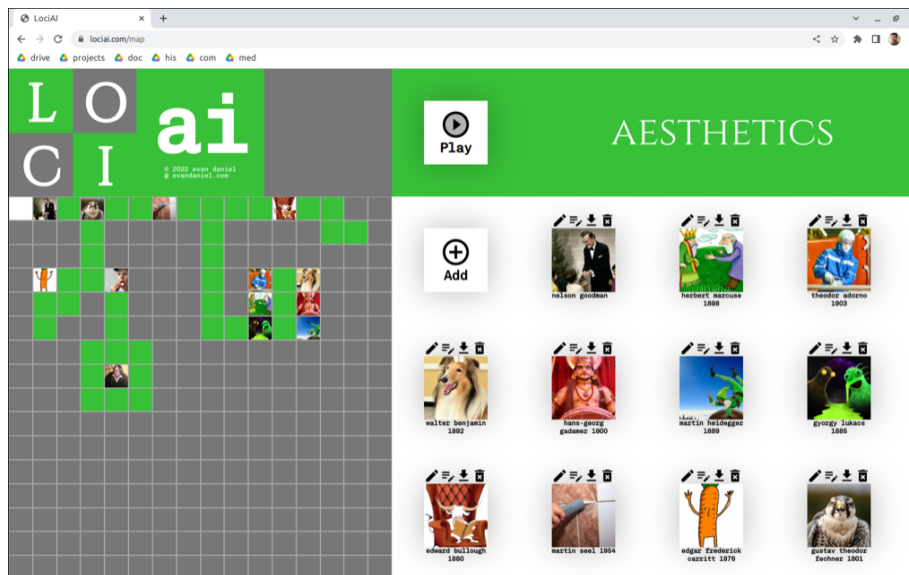
Figure 1: Home page

Figure 2: User interface for the page where users generate or upload mnemonic images and place them in a schematic.
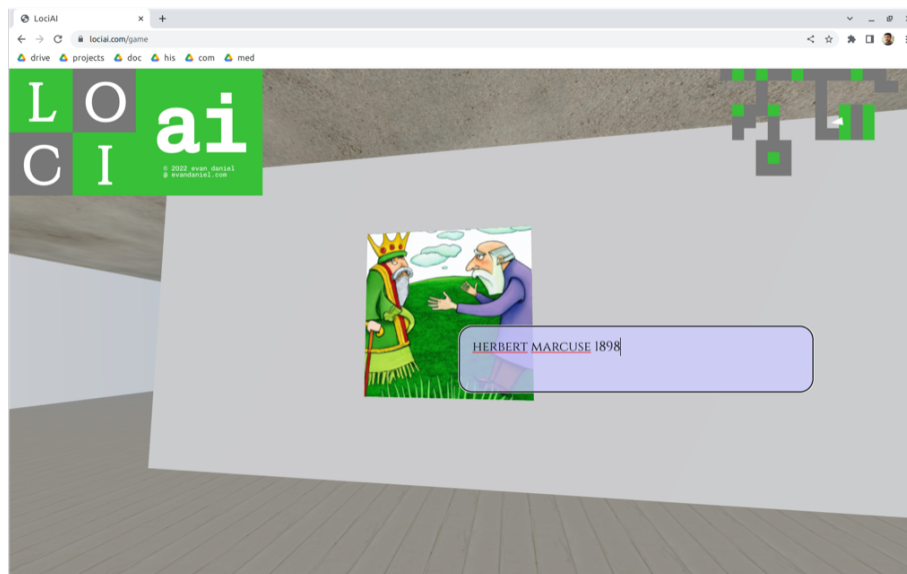
Figure 3: Game interface.

This project is a direct result of my own experimentation in the use of digital media to facilitate and shape learning. In particular, the functionality of the app resonates with research in neuroscience that relates hippocampal place cells and grid cells to memory. Above, find May-Britt Moser's 2014 Nobel lecture on this relationship[2]. Contemporary research in neuroscience has also addressed the applicability of place cell mechanisms to digital spaces, e.g. in Spatial cell firing during virtual navigation of open arenas by head-restrained mice[1].

References

[1] G Chen, JA King, Y Lu, F Cacucci, and N Burgess. Spatial cell firing during virtual navigation of open arenas by head-restrained mice. *ELife*, 2018.

[2] May-Britt Moser. Grid cells, place cells and memory. `https://www.nobelprize.org/uploads/2018/06/may-britt-moser-lecture.pdf`, 2014.