# portfolio.

**Xinyi Zhu** Interaction Designer | Creative Technologist



Nov 2021 - Present Product Designer | Shamiri Institute

+ Lead the product design for Shamiri Health, an affordable mental health platform for enterprises in Africa that provides dynamic and personalized wellness solutions for their teams.

+ Create high-fidelity prototypes using Figma for a mobile app to be launched in Spring 2022.

Jun 2021- Dec 2021 HCI Researcher | Berkeley Institute of Design

+ Conduct extensive research on generative design techniques.

+ Design and implement an interactive web-based system prototype called LOGiCS and an interactive virtual reality system prototype called GeneratiVR, which allow human designers to explore and control generative design systems for a range of application domains.

Jul 2020 - Mar 2021 Design Research Intern | frog

+ Organized participatory workshops and conducted user
interviews to identify user needs and improve product experience.
+ Designed and implemented tools using Python, Tableau
and React which resulted in improved data analysis and data
visualization throughout multiple projects.

Sep 2018 - Aug 2019 UX Researcher | iQIYI

+ Initiated research on user viewing behaviors to enhance customized audience targeting, customer retention and content recommendation strategies.

+ Maximized content indicator system resulting in improved evaluation and predictive analysis of content performance with data product teams.

I am an interaction designer, creative technologist, and HCI researcher with a background in Mathematics and Data Science. Innovating at the intersection of design and technologies, I work with Data, Interface, XR and Physical Computing. I design interactive tools and systems that leverage emerging technologies to facilitate human creative process, and curate immersive digital experience that bridges the gap between different mediums and spaces.



01	Invisible Zoc
02	Fable
03	SOMNUS
04	LOGiCS

### Invisible Zoo

Invisible Zoo is an interactive system that allows people to create imaginary beasts and mythical stories with the assistance of generative deep learning models. It aims to mediate the conversation between human imagination and machine intelligence in order to go beyond the traditional creative process, and reflect on the autonomy and authorship in AI-mediated human creativity.



Invisible Zoo

### PRIOR ART





In a technical context, this thesis is inspired by the recent trend in image editing methods that address the potential and challenges of finding semantic parameters inside latent vector spaces. Well-known examples of these GAN-based applications include GauGan and DALL-E. In a creative context, the thesis draws inspiration from literature, such as the Chinese classics Shan Hai Jing, and artists, such as Luigi Serafini and Sofia Crespo. One way that humans express themselves and preceive the world creatively is through their constructions of imaginary worlds and alternative forms of life.

### APPROACH



The system is built with a pre-trained StyleGAN2 model on animal datasets, and incorporates styleCLIP and GPT-3 for natural language generation. By these means, users are able to produce an image of a beast along with a short biography. Users will be presented with a physical controller that allows them to curate and interact with the appearance of the beasts, which are displayed through a digital interface. After composing their desired beasts, people can choose to "archive" this imaginary animal to a myth collection by physically printing them out.

Invisible Zoo

### PROCESS

#### Training



#### Stylization

#### Text generation

#### Interfaces

import { Configuration, OpenAIApi } from "openai"; const configuration = new Configuration({ apiKey; process.env.OPENAI\_API\_KEY, ); const copenai = new OpenAIApi(configuration); const copenaicent async function (req, res) { const completion = await openai.createCompletion("text-davin prompt: generatePrompt(req.body.animal), temperature: 0.8, mox\_tokens:256, too\_pii, frequency\_penaity:0 ); res.status(200).json({ result: completion.data.choices[0].td ); res.status(200).json({ result: completion.data.choices[0].td ); function generatePrompt(animal) { const copitalizedAnimal = | animal[0].tdupperCasc() + animal.slice(1).toLowerCase(); return 'Suggest a story for a mythical animal.

> Mythical animal: A Buo A Qu Story: This is A Buo A Qu. A creature that lives on the staircase of ti Mythical animal: Celestial Stag. No one has ever seen a Celestial Stag. ' Mythical animal: Golem Story: This is Golem. This creature was created for the purpose of doi Mythical animal: SicapitalizedAnimal) Story: ' >>

### Final Design

Through the co-creative process of generating imaginary beasts and mythical stories, the project seeks to extend the traditional creative process. By mediating this conversation between humans and machines, the project aims to translate and communicate the insights from human intuition and highdimensional deep learning networks. Through the construction of a playful scenario, where humans make conversations with machines, Invisible Zoo stands as a reflection on the autonomy and authorship in AI-mediated human creativity.



### Fable

Albany Bulb is a community based, public art park which was built on trash and construction debris. FableAR is an augmented reality experience which allows visitors to digitally create and contribute art at Albany Bulb without leaving a physical footprint in its natural landscape. They can create unique virtual animals using found objects and natural elements of the landscape, engage with their animated animals within the space, and leave them for others to explore and play with.



### DESIGN RESEARCH

Albany Bulb is home to a variety of physical art practices that incorporate natural elements, trash, found objects, as well as graffiti on rubble and trees. It has become a destination for freeform public contribution and viewing of art. We are motivated by the historical and cultural richness of the site, from a landfill to a natural urban art gallery, and want to bring an additional layer of interaction and story to this site.



OBSERV	ATION	SPATIAL ELEMENTS	TEMPORAL ELEMENTS
Sense of Anarchy & Freedom	Easy to interact with the Environment	Adding another layer of storytelling	Different elements occupy the site in a temporal sequence
Different terrain and surfaces	Point of Destination	Range of opportunities in 'Microspaces'	Creating spiritual connections
Traces of Human Interventions	Nature feels abused	Seek for power balance between human and nature	New translation of the rich site history

### CONCEPT

Our concept is to create an AR experience with the found objects at Albany Bulb, where objects come to life as the form of spiritual animals, and are offered to the nature from the visitors. We set up FableAR at a particular location at Albany Bulb: a pine tree at the edge of the park where visitors come to rest and take in the view across the bay as a destination spot. It is surrounded by eclectic works of art and spiritual artifacts.



## AR DEVELOPMENT



#### 01 Image Anchor

We first implemented an image anchor to map the virtual environment onto the real life environment.





Animal animation





Standing



Eating

Scene animation



#### **03** Animation

### 02 Texture Mapping

Texture mapping was used for each animal on our site. We used images of art installation and personal memorabilia to transform them into 3D animals on the site. 12

### **USER EXPERIENCE**



1. Users arrive at the site and see a magic circle through an iPad



2. Users go into the area and the ring effects indicate the objects for them to explore



3. Users grap the found object which they are interested in



4. Users follow the instruction to find the magic rock, the "altar"



5. Users follow the instruction and place the found object on the "altar"



6. After the object is recognized, users take a picture of the object



7. The object transforms into a spirit animal and the texture is the image of the object



8. Users tap the animal to bring it to life and send it away into the digital spiritual world

SOMNUS is a speculative inflatable device worn on the head and is equipped with a variety of electronics that work in concert to induce synchronized, lucid dreaming between two or more people. We designed SOMNUS as a panacea in response to a dystopian future world where human beings are burnt out and overwhelmed by endless work and production, ultimately sacrificing genuine connection with loved ones, friends, and strangers.



### WORLD BUILDING

We imagine a dystopian future world where human beings are burnt out and overwhelmed by endless work and production, ultimately sacrificing genuine connection with loved ones, friends, and strangers. Stress and exhaustion are no longer just personal experiences, but unstoppable phenomena for humanity. SOMNUS is a regulated panacea in response to the deteriorating productivitydriven society.

In this speculative fiction, SOMNUS is an inflatable device worn on the head. It is equipped with LEDs, air pumps, peltier coolers/ heaters, and bone conduction transducers, which work in concert to induce synchronized, lucid dreaming between two or more people. Wearers choose dreams to "join" each night and are able to connect with others through synchronization while they sleep. Though the world-building is speculative, the technology is based on current research around lucid dreaming.



### LUCID DREAMING

There has been a lot of research on lucid dreams and the potential of controlling them. Lucid dream has proven to have a variety of clinical applications, such as a therapy for nightmares, PTSD, depression, and other mental health issues. Studies have shown that external stimuli such as audio signals, visual stimulus such as flashing lights and tactile stimulus such as vibration presented to a person during REM sleep can trigger lucidity. Although no existing research has really discovered any consistent way of controlling lucid dream, but we are on the direction to such a future of dream reality.



The hardwares we used based on current research around lucid dreaming

### **USER EXPERIENCE**

#### 01 falling asleep

Breathing rate synchronization Heart rate synchronization Audio stimulus Yellow LEDs

#### 02 REM sleep

Breathing rate synchronization Audio stimulus Temperature regulation White LEDs

#### 03 waking up

Stopping inflation/deflation Blue LEDs



### MAKING PROCESS

#### Iterations

Inflation test

Final Design



### SPECULATION



With SOMNUS, we aim to shed light on many heavy issues about our society and its possible future, contemplating and stretching the imagination of the relationships between humans and technologies:

Addiction of technology Mental health Invasion of privacy



### LOGiCS

LOGiCS is a system that generates conceptual designs for a set of UUVs (unmanned under vehicle) to accomplish a given mission and allows the designers to explore alternatives for mission planning by evaluating the output performance. You can learn more about the project here: https://logics.design/

I created a prototype interface for interactive visualization of the generative design system and implemented it with React. The interface is able to: (1) visualize simulation to show the conceptual design of the plan meets the mission requirement; (2) Plan for iterative human-in-the-loop design refinements

