

# Handheld Homebrew

An Intro to Hobbyist Game  
Boy Development

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PRESS  
START

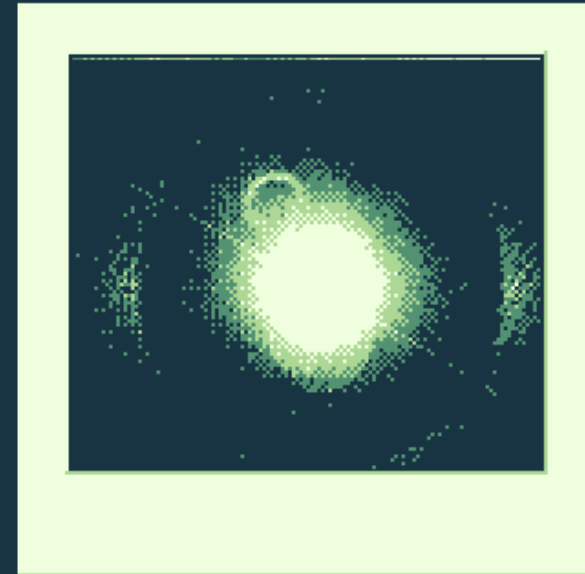
# Why Game Boy?

Nearly 35 years after its launch, Nintendo's Game Boy persists as a potent cultural object due, in part, to its:

- Recognizability
- Nostalgia
- Cultural capital
- Hackability
- Customizability

Homebrew software continues to be developed for the system to this day and runs the gamut from:

- Amateur games
- Art pieces
- Programming Exercises
- Music synthesizers
- Digital cameras
- Solar sensors



# Roadmap

**Theory & Context:** What are some of the ways we might use homebrew? What cultures and economies surround homebrew?

**Practice:** Introduction to GB Studio, a free, open-source game creation program.

**Creative Engagement:** Examples of hands-on research creation using Game Boy homebrew.



# Homebrew Affordances

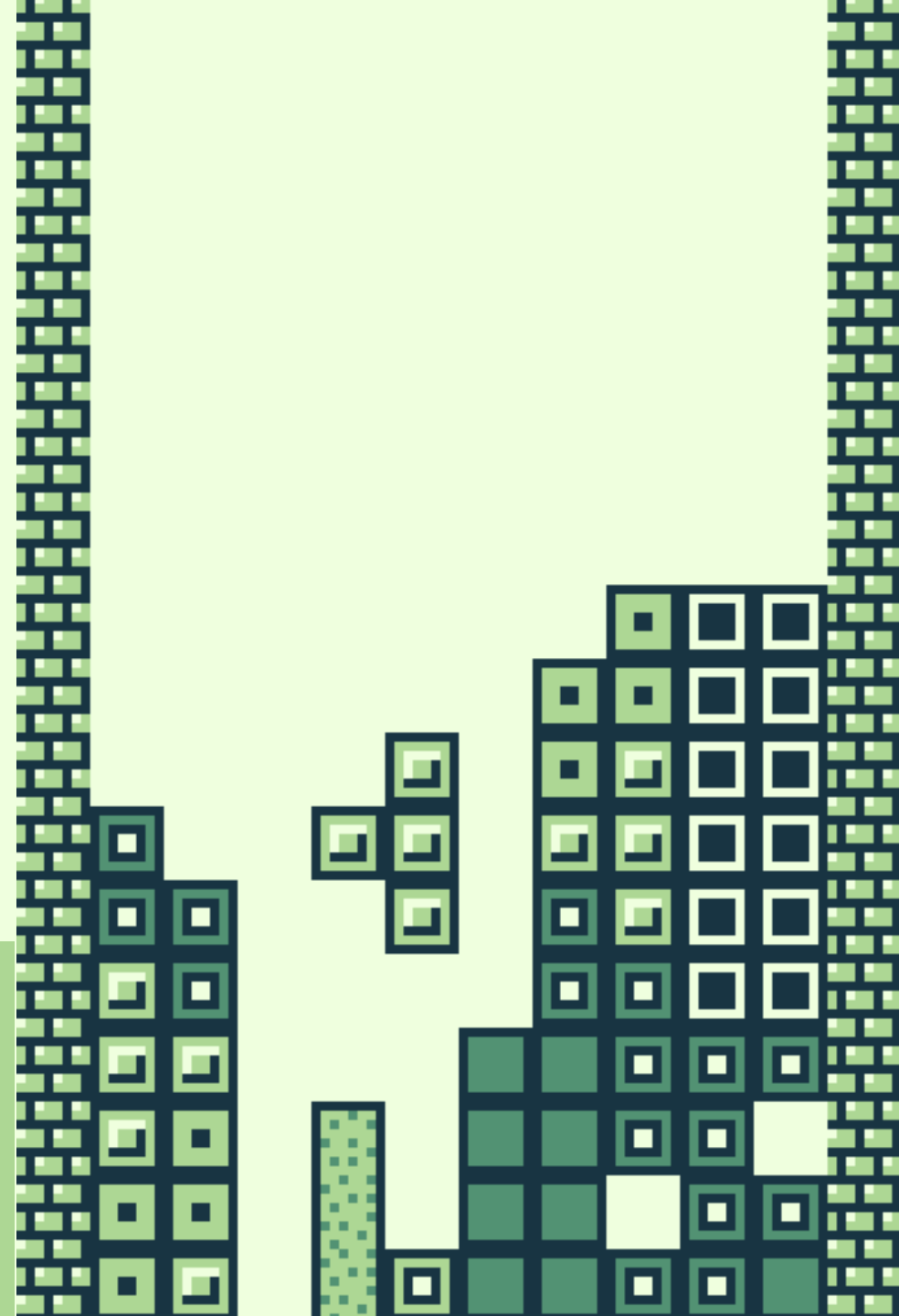
**Solo Development:** The scope of a Game Boy / Advance game is such that one person or a small team can create homebrew software in free time.

**Unspecialized Labour:** Homebrewers can contribute to every part of creation (compared to large teams of highly-specialized professionals)

**Opening the Black Box:** Homebrew is at odds with the capitalist model of platformization (Niebord & Poell).

“Contemporary electronic devices are intentionally built so that users will discard them, and their obsolescence is clearly planned.”

- Hertz & Parikka, “Zombie Media”



# Homebrew Barriers

**Lack of programming information:** Official programming reserved for licensed parties; hobbyists unveiled the intricacies of the black box through reverse engineering.

**Circumventions of technical protection measures:** Murky legal environment that requires reproducing Nintendo's trademark to render games operational

**Technical constraints:** Limitations of the hardware itself (color palettes, audio channels, controls, memory, etc.)

**Programming language:** Imposed constraints of programming in assembly language. Returning to the level of the machine (this is both an affordance and a constraint).

**Systemic exclusions :** Geek elitism grounded in computational fluency that excludes people who have not historically has the same access.

“Working-class boys with neither the time nor the money to tinker with wireless could not participate as easily. Neither could girls or young women, for whom technical tinkering was considered a distinctly inappropriate pastime and technical mastery a distinctly unacceptable goal. This fraternity, whether self-consciously or accidentally, brought together roughly similar men in a region uninhabited by those so different from them.”

- Douglas, *Listening In*

# Tech Demos

A liminal object that is neither playable game nor art piece. Tech demos show off a hobbyist's technical literacy and programming skill through impressive visual, audio, or gameplay effects.

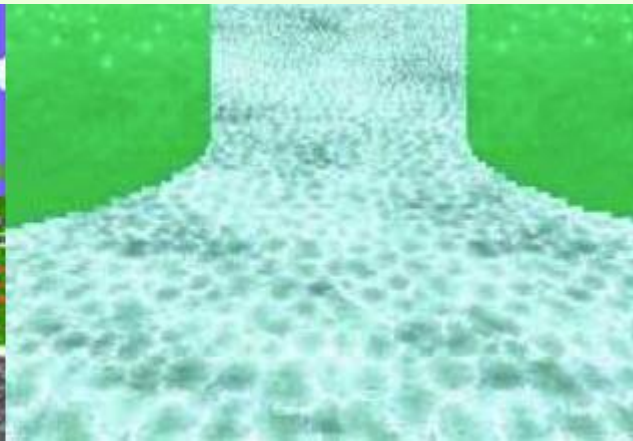
“Small world games harness the built-in features of the GBA hardware that minimize the programming of game infrastructure; they resist the temptation towards indulgent programming to encourage a focus on the implementation of gameplay. Their design is also often cognizant of the on-going nature of homebrew development, in which additions are made in pockets of time snatched during late nights or vacations. In short, they are an effective response to homebrewers' technical and social restrictions.

- Camper

Andrew May's Mode 7 Demo



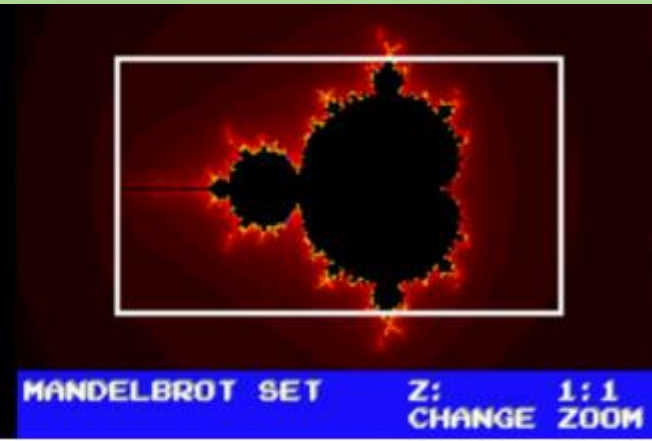
Debray Matthieu's Demo  
Mode 7: Waterfall



Robert Parnell's 8Bit 3D  
Lighting Demo



Jimmy Mårdell (Yarin)'s  
Fractal



# The Economy of Homebrew

Programming enables participants to acquire technical knowledge and hone a diverse set of programming skills, which contributes to both personal and professional development.

While the Game Boy / Advance's technical architecture don't invite the civic engagement, informal mentorship, and social connection of participatory culture (quite the opposite), the online milieu of homebrew affords the circulation of the requisite technical knowledge to program for the platform, encouraging synchronous creation and consumption.

For homebrew developers, the end goal is rarely to produce a polished game.

```
"My skills as a GBA
developer led to a freelance
project back in 2005 that
helped me make the decision
to "jump ship" from the
corporate world I'd been
working in. Wow, that's just
crazy to think about ... My
life would be totally
different today without this
forum. ... My experiences on
the GBA gave me a bunch of
knowledge that helped me
with the big, hairy series
of interviews that I had to
go through to get my current
job. It's funny how hobbies
can do that."
```

- SimonB and Krom

# LSDJ

Little Sound DJ, a custom program developed by Johan Kotlinski in 2000 for chip music.

The homebrew program overrides the hardware's audio synthesizer to turn the handheld into a portable sequencer.

Il interpelle les femmes :  
«Amigas, mujeres, hijas,  
estamos despiertas. » (Amies,  
femmes, filles, nous sommes  
debout.). Dans ce cas, la  
machine devient la résonance  
d'une voix politique féministe  
contre l'hégémonie étatsunienne  
et anglocentrisme.

PHRASE 5A	INSTRUMENT 07
01 BD-CYM I01-00	SP2NAME HIP 0
02 -- -- I01-00	CP0TYPE KIT
03 --OHH I01-00	
04 CHH -- I01-00	KIT 05 TR-909
05 SD-COW I01-00	WAV / 11 GHETTO
06 -- -- I01-00	
07 BD-RIM I01-00	161 VOLUME 3
08 -- -- I01-00	OUTPUT LR
09 --OHH I01-00	1 PITCH 00
10 --COW I01-00	2 OFFSET 00/00
11 BD -- I01-00	WBD LEN AUT/AUT
12 --CLA I01-00	N LOOP OFF/OFF
13 SD-CLA I01-00	SPEED 1X
14 BD-MAL I01-00	DIST CLIP
15 CHH -- I01-00	VIB. TYPE HF✓
16 RIMCLP I01-00	TABLE OFF

It [the Game Boy] interpellates women: "Friends, women, girls, we are standing." In this sense, the machine resonates as a feminist political voice against US and Anglocentric hegemony.

- Pelletier

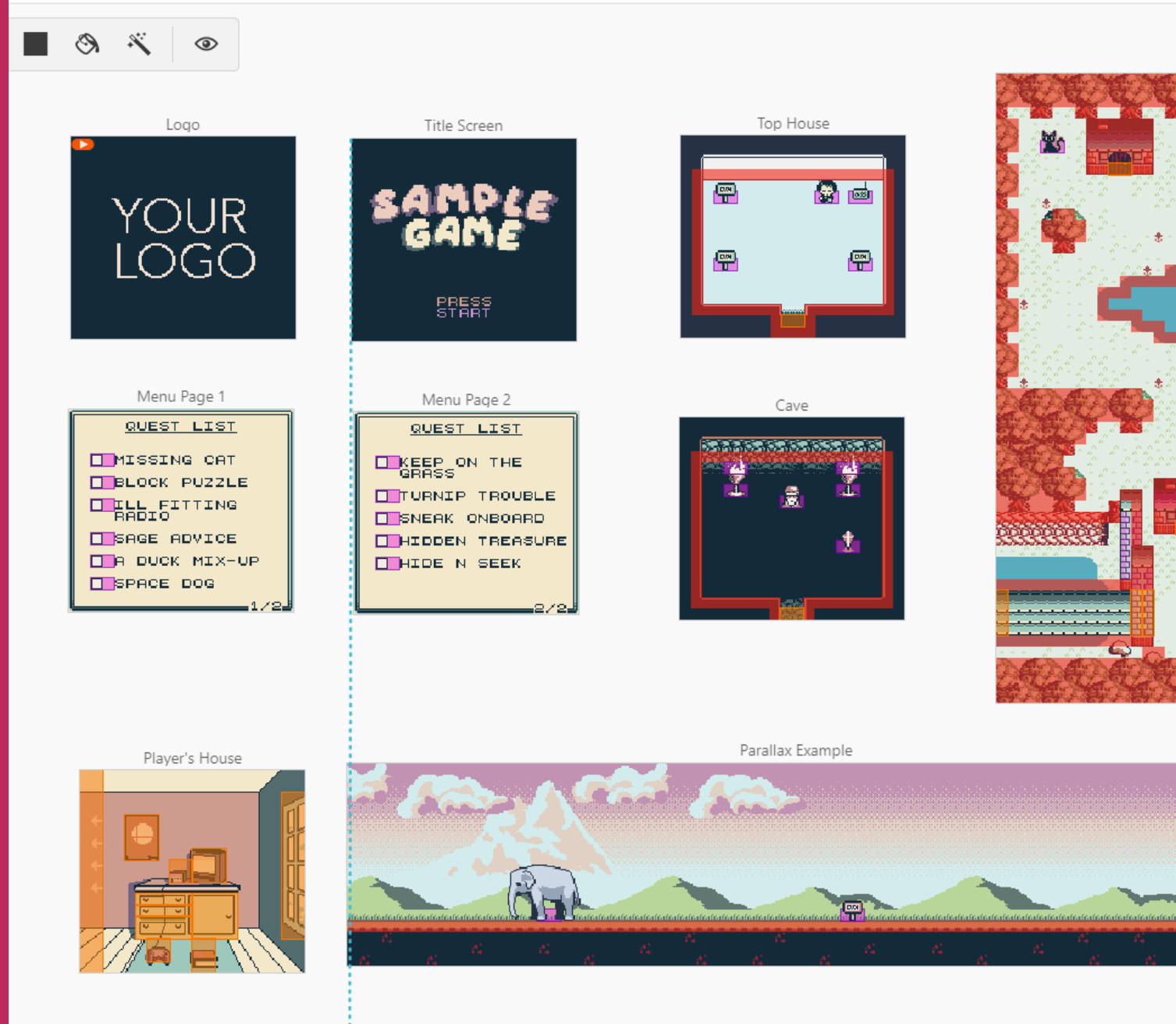


# GB Studio

Created by Chris Maltby, initially as a series of scripts.

Conceals much of the complexities of game development behind an intuitive visual interface.

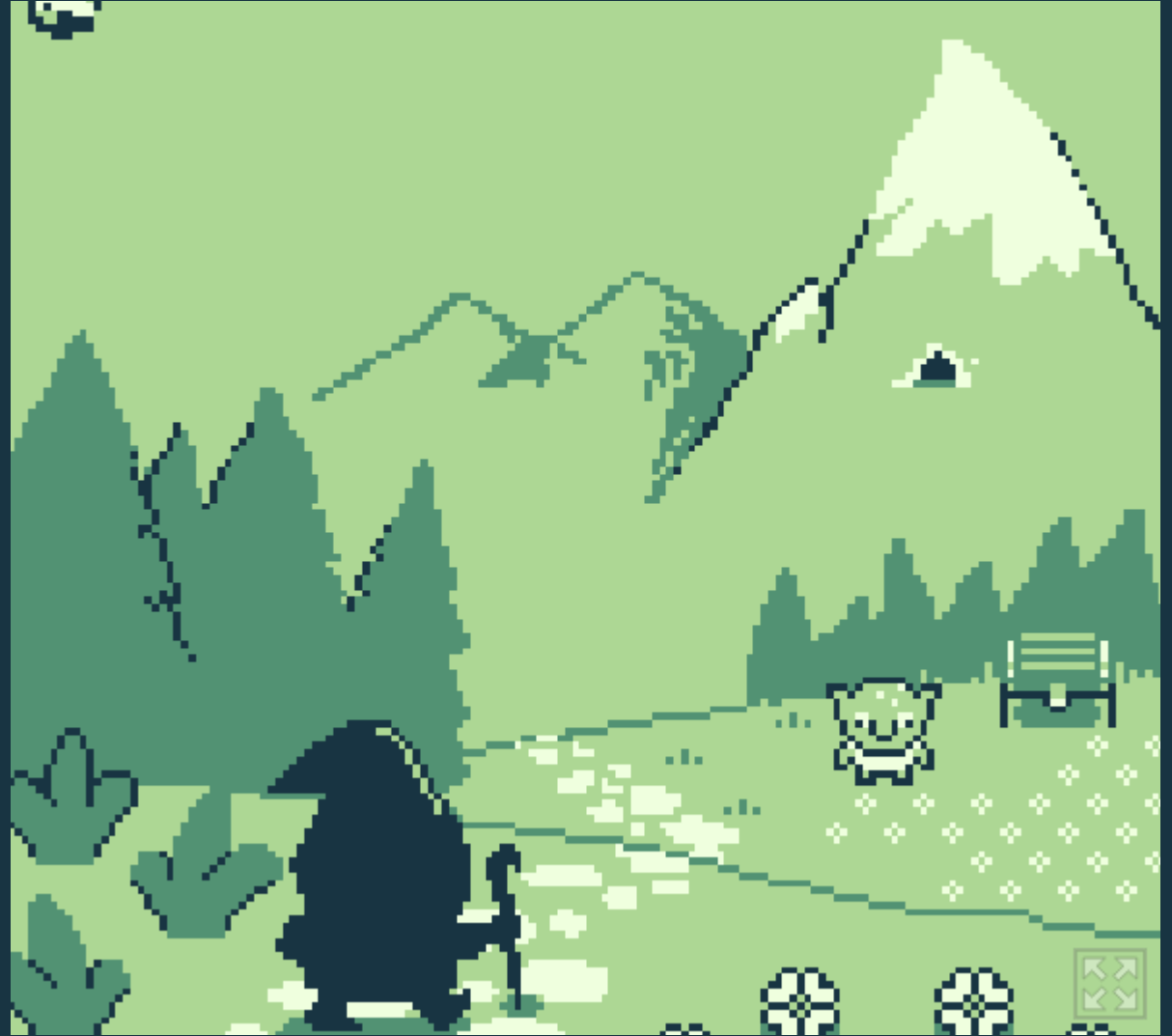
Few outward markers that indicate a game was made in GB Studio, removing a lot of the pressure of technical and programming literacy from the design process.



# Gurb's Adventure

## Pixel Pete

Demonstration of the game engine's basic functionality. The game follows the gnome Gurb whose hat is stolen by a squirrel.



# Crescent Moon

**pixelloren**

Inspired by Harvest Moon. Long opening narrative that shows off GB Studio's storytelling opportunities.



# Deadeus

## IZMA

Music by **Stuart Busby**

An authentic horror game that follows a young boy who has a prophetic nightmare that tells him everyone will die in 3 days unless he determines a way to save them.

There are 11 endings and no clear path, leaving the final outcome in the player's hands.



SCENES

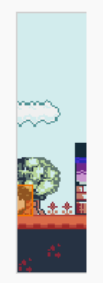
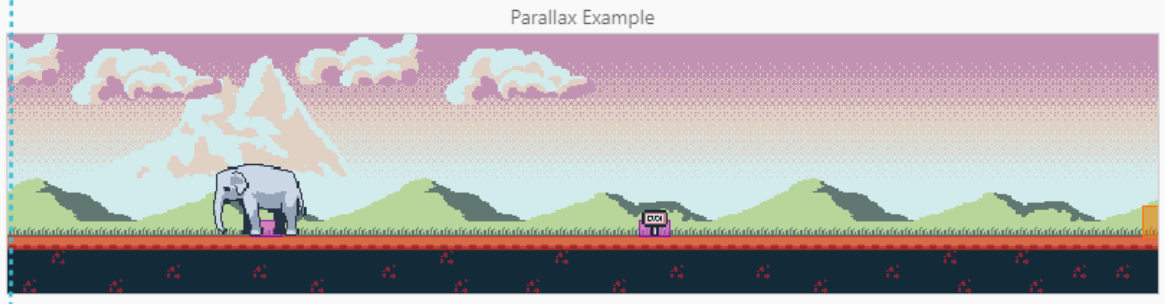
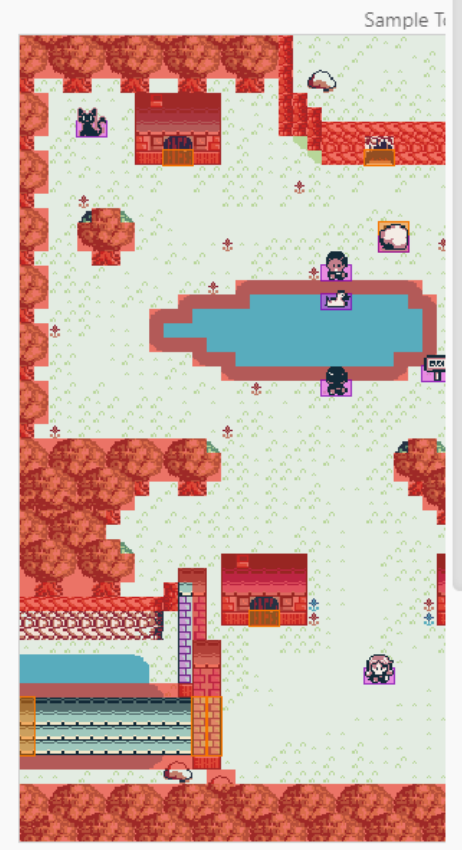
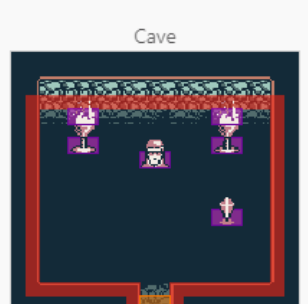
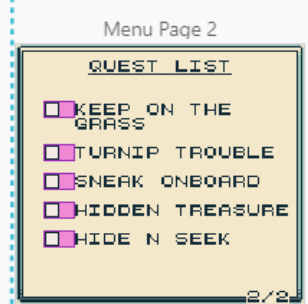
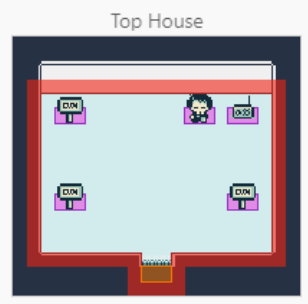
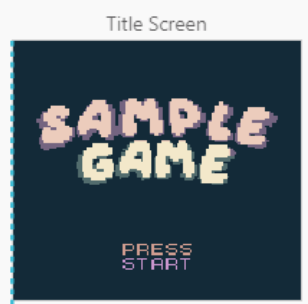
- Deeper Underground
- Dream
- Launch Site
- Logo
- Menu Page 1
- Menu Page 2
- Music House
- Parallax Example
- Path to Sample Town
- Player's House
- Sample Town
- Scene 18
- Scene 19
- Space Battle
- Title Screen
- Top House
- Underground

SCRIPTS

- Enemy Ship Destroy
- Enemy Ship Hit Player
- Enemy Ship Movement Diag...
- Enemy Ship Movement Diag...

VARIABLES

- Variable 32
- Variable 33
- Variable 34
- Variable 35



Scene 19

Type: Platformer

Background: hidden\_cave  
 Size: 32x18  
 Tiles: 22

Background Palettes: [Color swatches]

Sprite Palettes: [Color swatches]

Player Sprite Sheet: player\_platform  
 Type: Sprite  
 Tiles: 17

On Init On Player Hit

Fade Screen In (Automatic)  
 Speed 1 (Faster)

+ Add Event

# Homebrew & Research Creation

Complicating the embodied experience of playing on an ostensibly private platform.

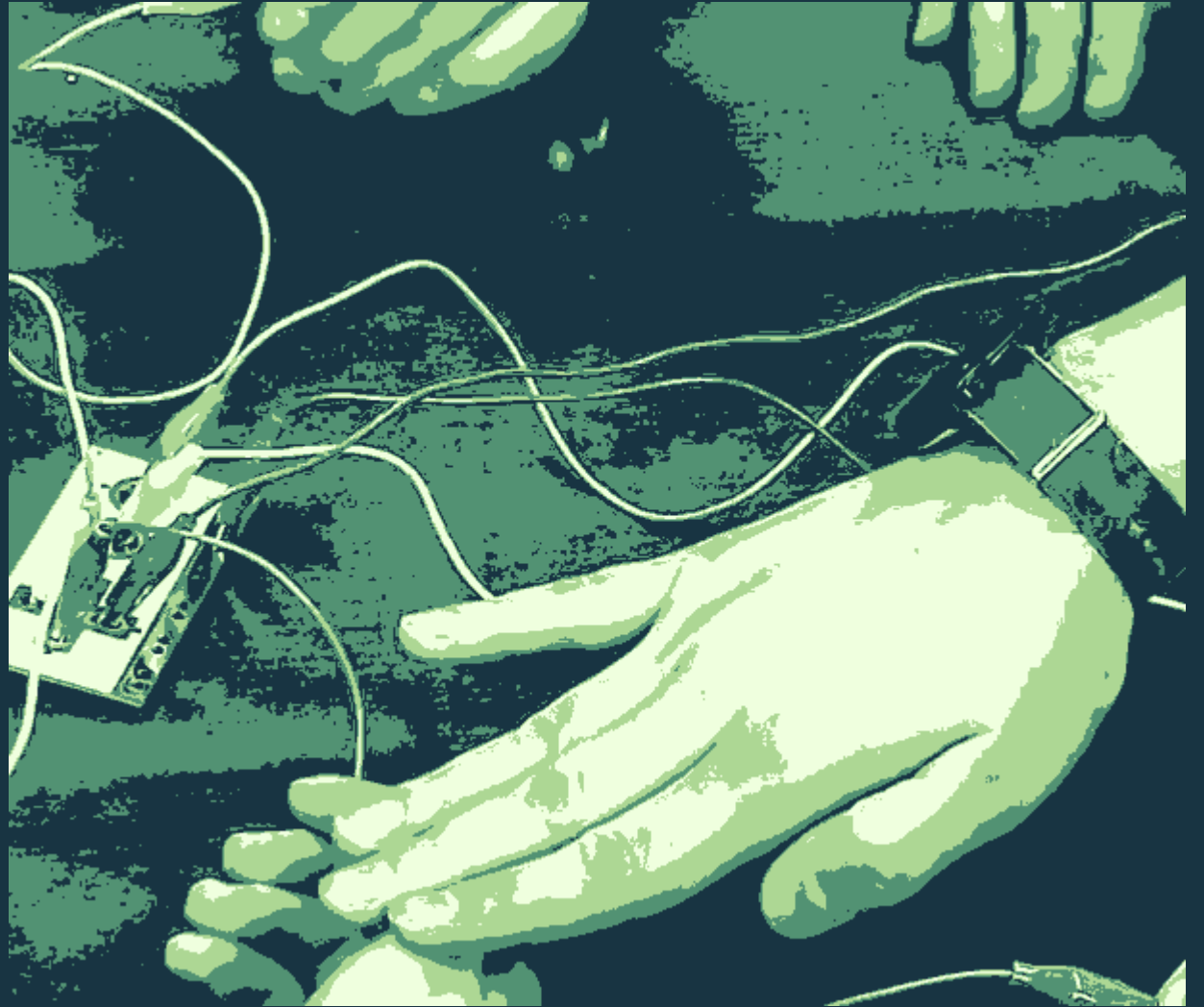
As a handheld, the Game Boy is often understood as a deeply individualized device. Nintendo's marketing campaign for the Game Boy Advance inextricably tied personal identity to the games one played on their handheld with their slogan **"Who Are You?"**

**Lattice** uses the act of holding hands as its core game mechanic.



# Research Questions

- What happens when actions are literally reliant on the intimate act of handholding?
- How does interface alter the way we engage with games and with other humans?
- Is it possible to build trust directly into a game's mechanics?
- How do players decide which path to choose when at a crossroads?
- How are decisions negotiated between five players?





# (En)Tangled



nintendo GAMEBOY







# Thank you!

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