CART 315

GAME PROTOTYPING

M Bethancourt

WE ACKNOWLEDGE THAT CONCORDIA UNIVERSITY IS LOCATED ON UNCEDED INDIGENOUS LANDS. THE KANIEN'KEHÁ:KA NATION IS RECOGNIZED AS THE CUSTODIANS OF THE LANDS AND WATERS ON WHICH WE GATHER TODAY. TIOHTIÁ:KE/MONTREAL IS HISTORICALLY KNOWN AS A GATHERING PLACE FOR MANY FIRST NATIONS. TODAY, IT IS HOME TO A DIVERSE POPULATION OF INDIGENOUS AND OTHER PEOPLES. WE RESPECT THE CONTINUED CONNECTIONS WITH THE PAST, PRESENT AND FUTURE IN OUR ONGOING RELATIONSHIPS WITH INDIGENOUS AND OTHER PEOPLES WITHIN THE MONTREAL COMMUNITY.

HI!

M Bethancourt / Mouse & the Billionaire

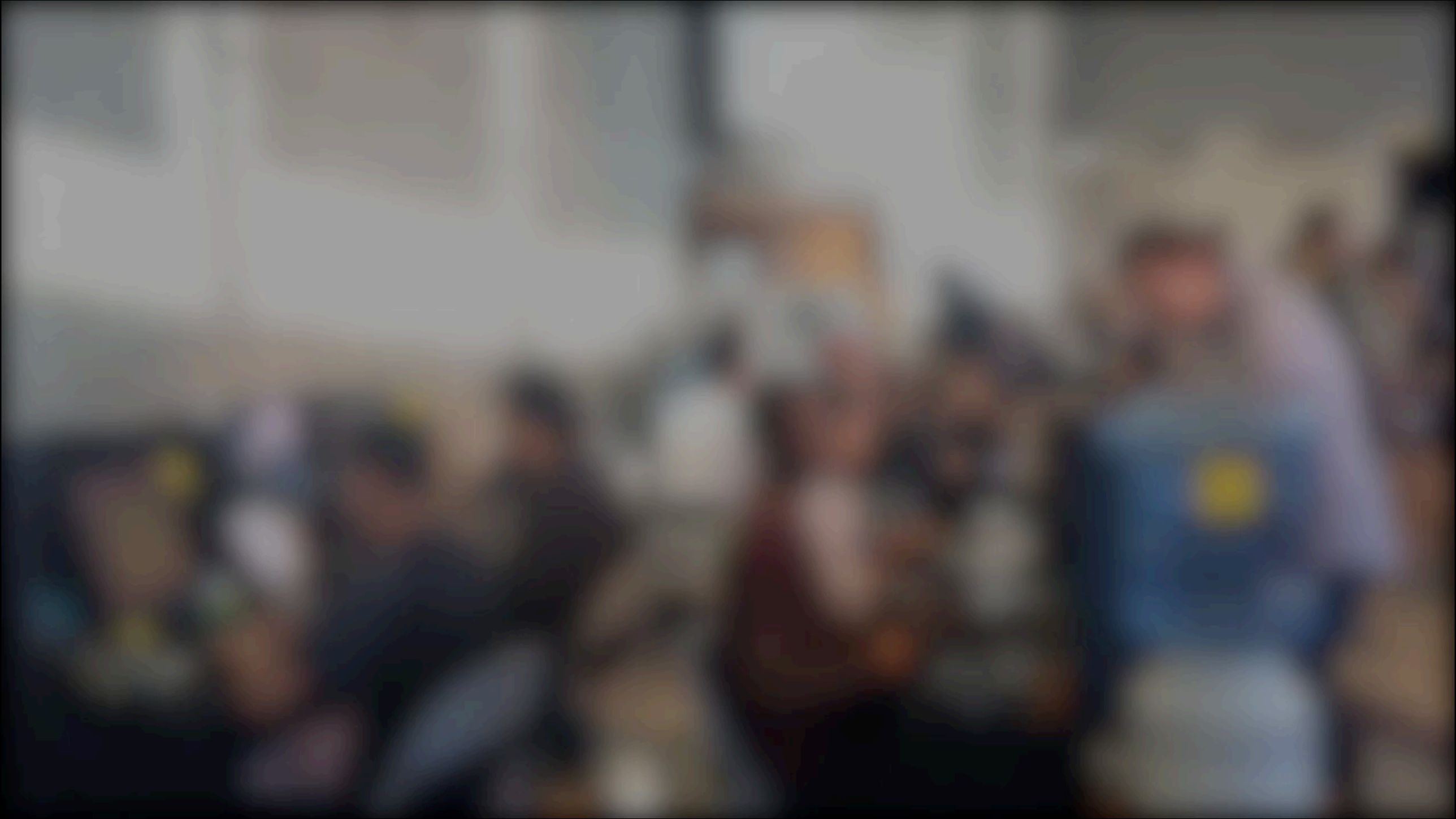
Mouse & the Billionaire

WORK / ABOUT

STEPS
NEW YORK
SPEED
CENTROID
RMS
FLUX
POWER
CREST
BIT REDUCTION
FREQUENCY
REVERB
DELAY
NOISE
PHASE
MASTER VOLUME
MUSIC
SURVEILLANCE
TRANSMISSIONS

BUSY WORK

BUSY WORK
MOUSE &
THE BILLIONAIRE
O.S.-Y
VALVE
KEEP THIS
DOOR CLEAR
AT ALL TIMES
HECTOR SMITH



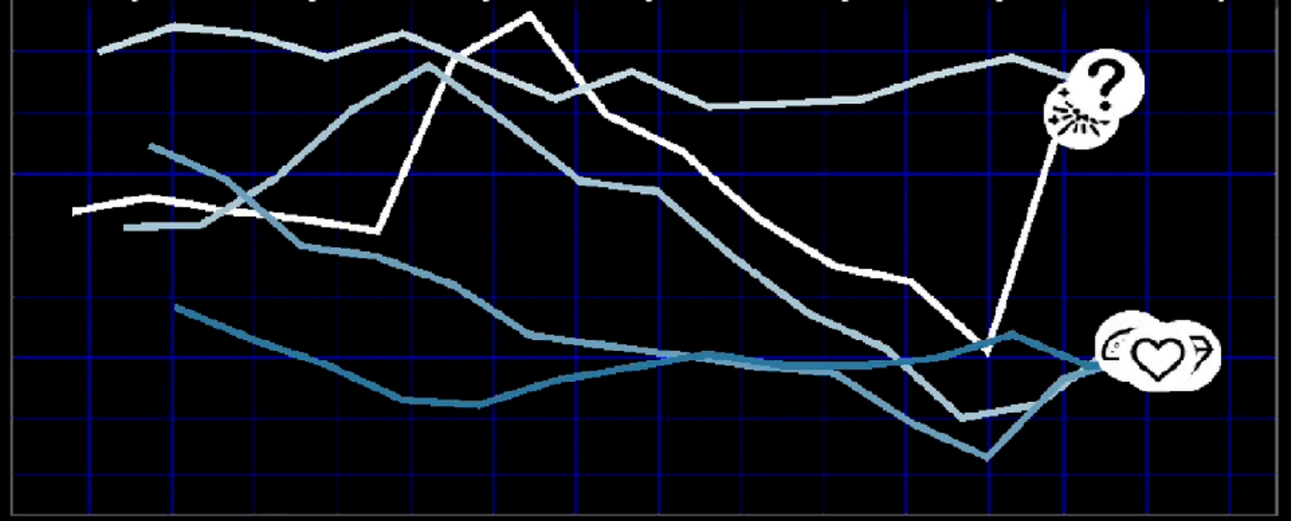
GDC
MOMS
TKOS
WHAAAT!?

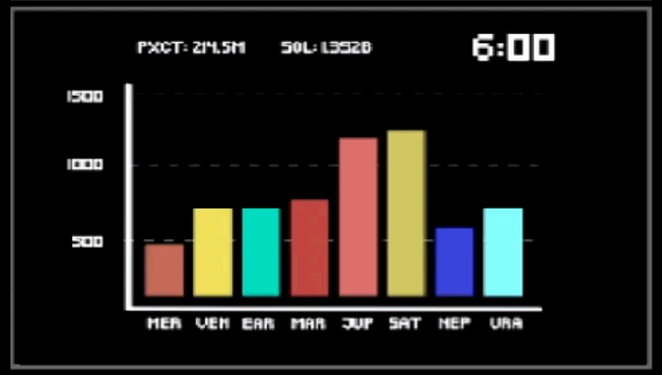
BOUGHT: 1	SOLD: 0	BOUGHT: 0	SOLD: 0	BOUGHT: 0	SOLD: 0
NNF	#-	YU	#DIAL	RRR	#9
???	@6.3	???	NONE	???	NONE
APLS	NONE	APLS	NONE	APLS	NONE
DMND	NONE	DMND	NONE	DMND	NONE
GLD	NONE	GLD	NONE	GLD	NONE
JOOC	NONE	JOOC	NONE	JOOC	NONE
MOMS	NONE	MOMS	NONE	MOMS	NONE
PZA	NONE	PZA	NONE	PZA	NONE
TKOS	NONE	TKOS	NONE	TKOS	NONE
WSHS	NONE	WSHS	NONE	WSHS	NONE

BUY! SELL!

WSHS	???	TKOS	MOMS	DMND
VALUE $5.4	VALUE $6.1	VALUE $2.7	VALUE $2.8	VALUE $3.1
BROKER# 9	BROKER# 1	BROKER# 8	BROKER# 6	BROKER# 3

TKOS $134.5 | PZA $156.1 | CNDY $1.34 | MOMS $13.





YLW -13.22
POOL +14.95
BLS +2.41
LNDA +11.99
DOGS -5.64
WHT -12.85
BLC +18.96
BLU -15.40
TRS -4.38
QZS +2.24
XING -10.51
JILL -16.28
MNY -9.92

LATEST NEWS

07:5:43	DMND	Update: Diamond mines may be all empty?
07:5:43	GLD	Alchemist's scam revealed! All that glitters isn't gold.
07:5:43	PZA	Pizza brings families together a slice at a time.
07:5:43	JOOC	More new juice themed holidays for 2019!
07:5:47	WSHS	Wishing Wells also provide hydration!

UPDATES

DS NEW MCNUGGET SHAPED LIKE A DINOSAUR IN HONOR

CUSTOMER REQUEST RECE
PLEASE TU IE TRANSLATOR ON
ASSISTANCE DEVICE TO CONTINUE.

WHO ARE YOU?

Name

Major

What you hope to get out of this class

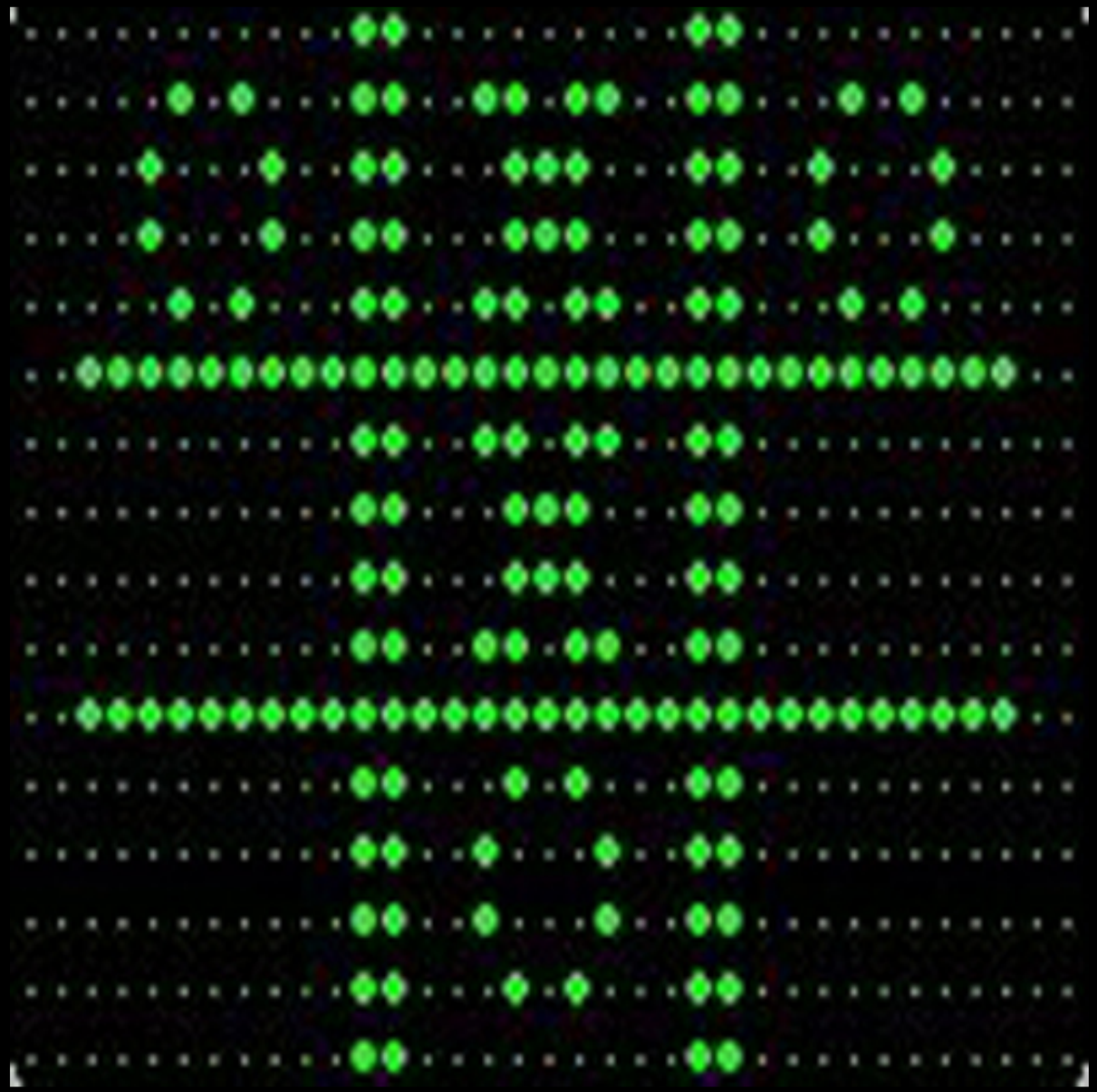
Favorite game you've recently played (or of all time!)

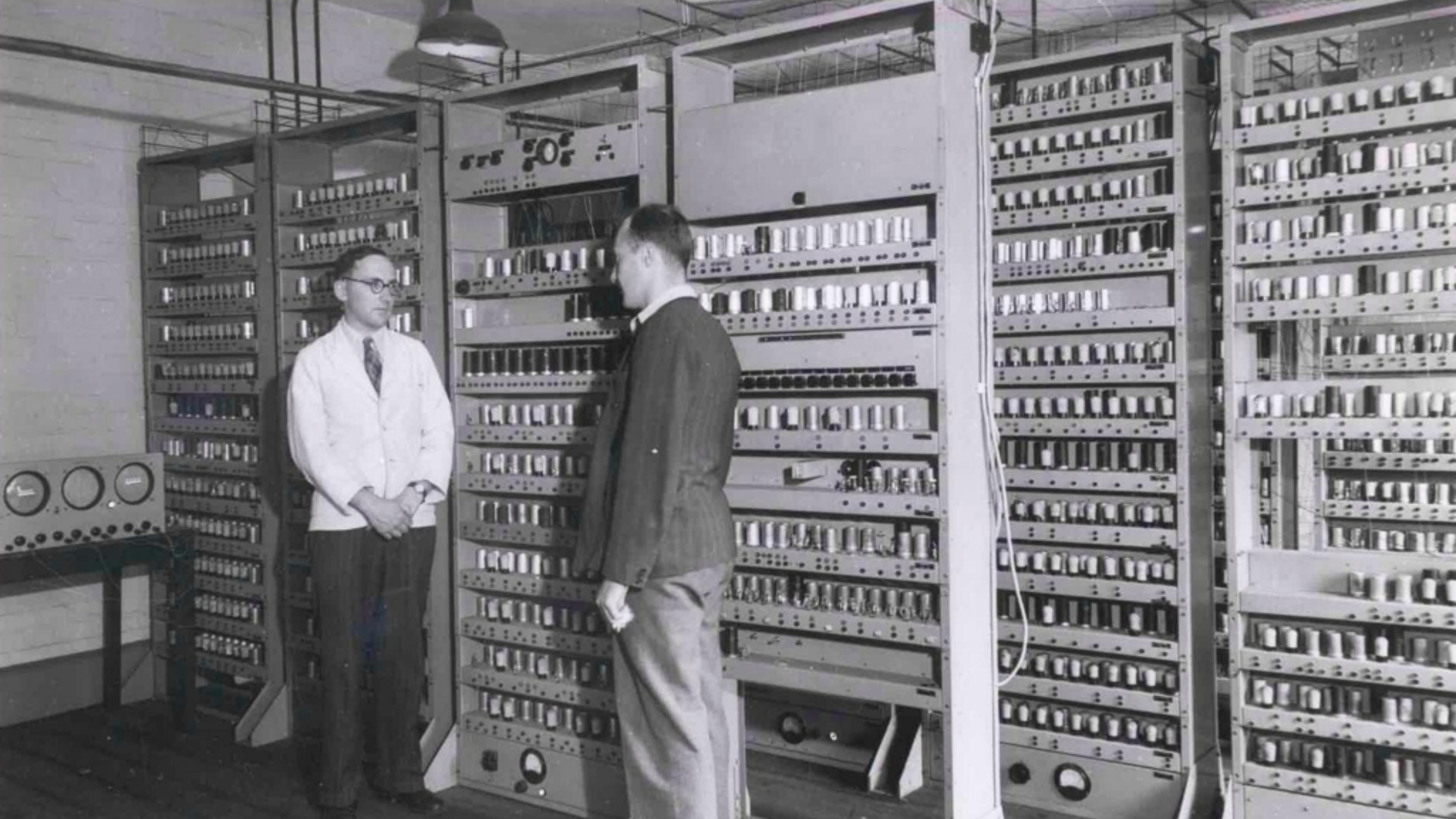
A LITTLE HISTORY

OXO

ALEXANDER SANDY DOUGLASS (1952)

- Naughts and Crosses
- Programmed on an EDSAC (Electronic Delay Storage Automatic Calculator) at Cambridge University

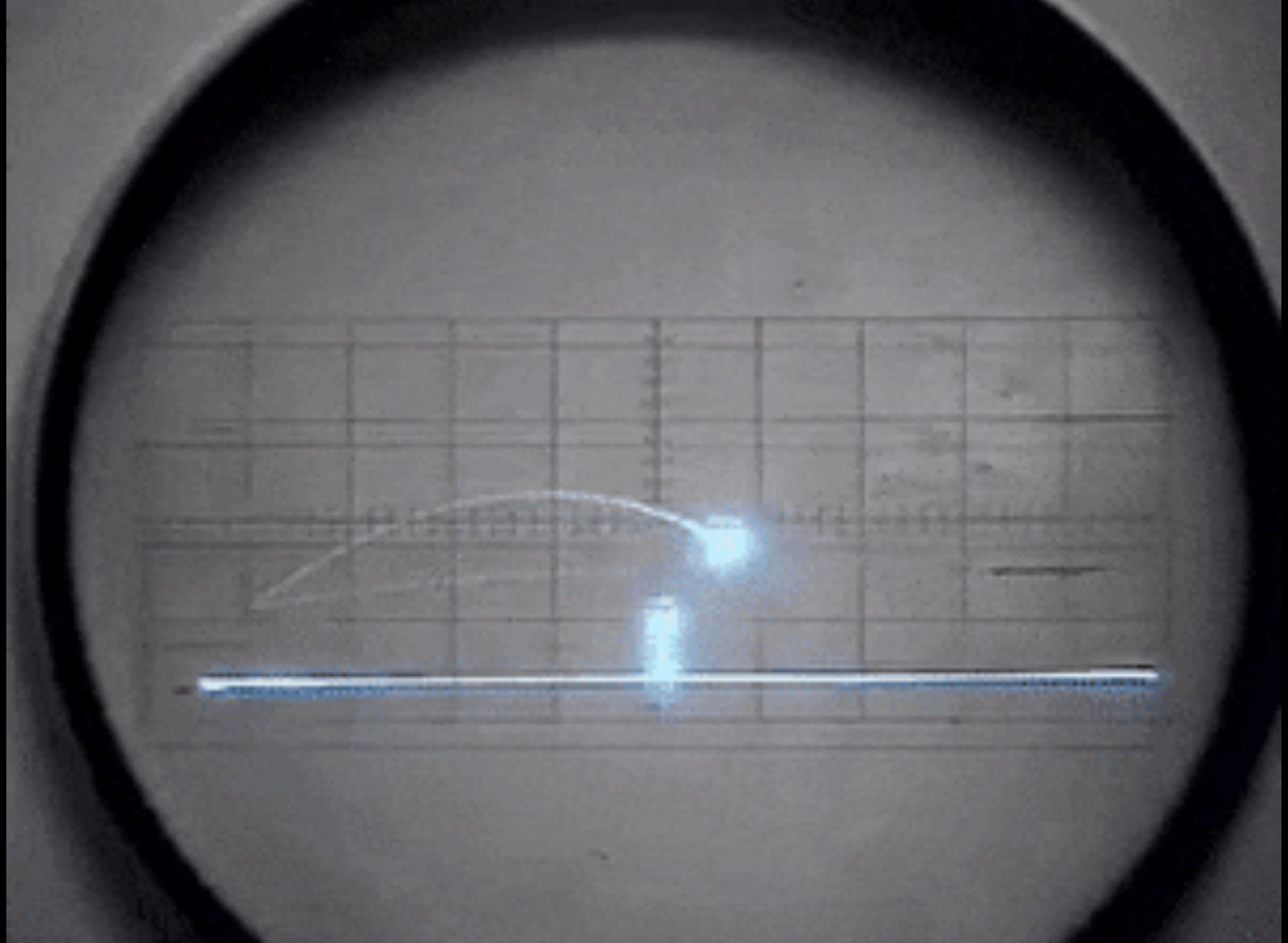




TENNIS FOR TWO

WILLIAM HIGINBOTHAN (1958)

- Programmed on a Donner Model 30 at the Brookhaven National Laboratory
- Video



SPACEWAR!

STEVE ‘SLUG; RUSSELL, MARTIN ‘SHAG’ GRAETZ AND WAYNE WITANEN (1962)

- Programmed on a DEC PDP-1 at MIT in 200 hours
- Play

PDP-1
PERSONS IS DANGEROUS
AND UNLAWFUL

COIN-OP MACHINES

A939
65

August, 1925

THE JOHN CRERAR LIBRARY
LIBRARY 1925

THE AUTOMATIC AGE

A Monthly Journal Devoted to the Interests and Promotion of Vending Machines, Self-Service Appliances and Devices and Automatic Merchandising

SEARCH THE WORLD OVER

AND YOU WILL NOT FIND ITS EQUAL AS A LEGITIMATE MONEY MAKER

Look over these interesting figures from Single Machines:

Red Cross Pharmacy, 63 Days	$98.05
Renfroes Drug Store, 29 Days	43.10
Dicks Drug Store, 4 Days	11.28
The Chocolate Shoppe, 3 Days	7.21

Rush your order for one or more Target Practice Machines and get our exclusive proposition on your city, county or state.

For territory in Idaho, New Mexico, Arizona, Montana, Wyoming and Utah, write PATRICK T. HENRY, Gunnison, Utah. For Wisconsin write Z. E. BUZZELL, 1681 24th St., Milwaukee, Wis.

ALL ABOVE STATES CLOSED, SO GET YOURS NOW
Special this Month, ONE MACHINE, $12.50; Ten at the 100-Lot Price.

YOU CANNOT AFFORD TO PASS THIS UP. SEND YOUR ORDER TODAY.

PRICES

1 Machine at	$20.00
10 Machines at	15.00
25 Machines at	12.50
50 Machines at	11.00
100 and up at	10.00

Write for prices on our Target. Practice Ball Gum Vender

HIGH GRADE BALL GUM

10-Case Lots Delivered at 15c per 100 Balls

THE SPECIALTY MANUFACTURING CO.

KICKER AND BATCHER
THREE BALLS
TRY YOUR SKILL
ONE CENT
AMUSEMENT ONLY

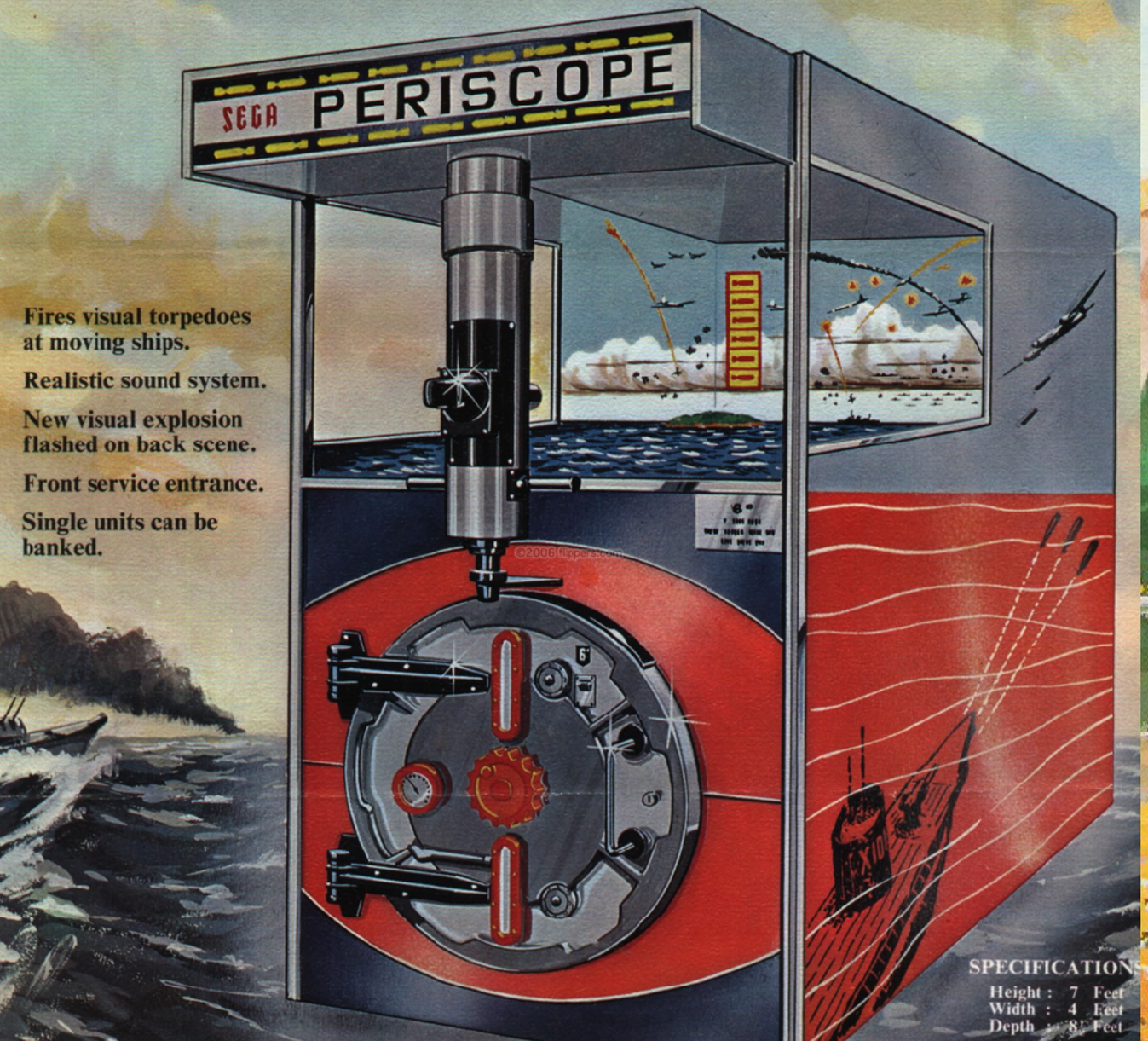
PLAY THE DERBY

PINBALL MACHINES

SEGA

Single Unit

PERISCOPE



Fires visual torpedoes at moving ships.

Realistic sound system.

New visual explosion flashed on back scene.

Front service entrance.

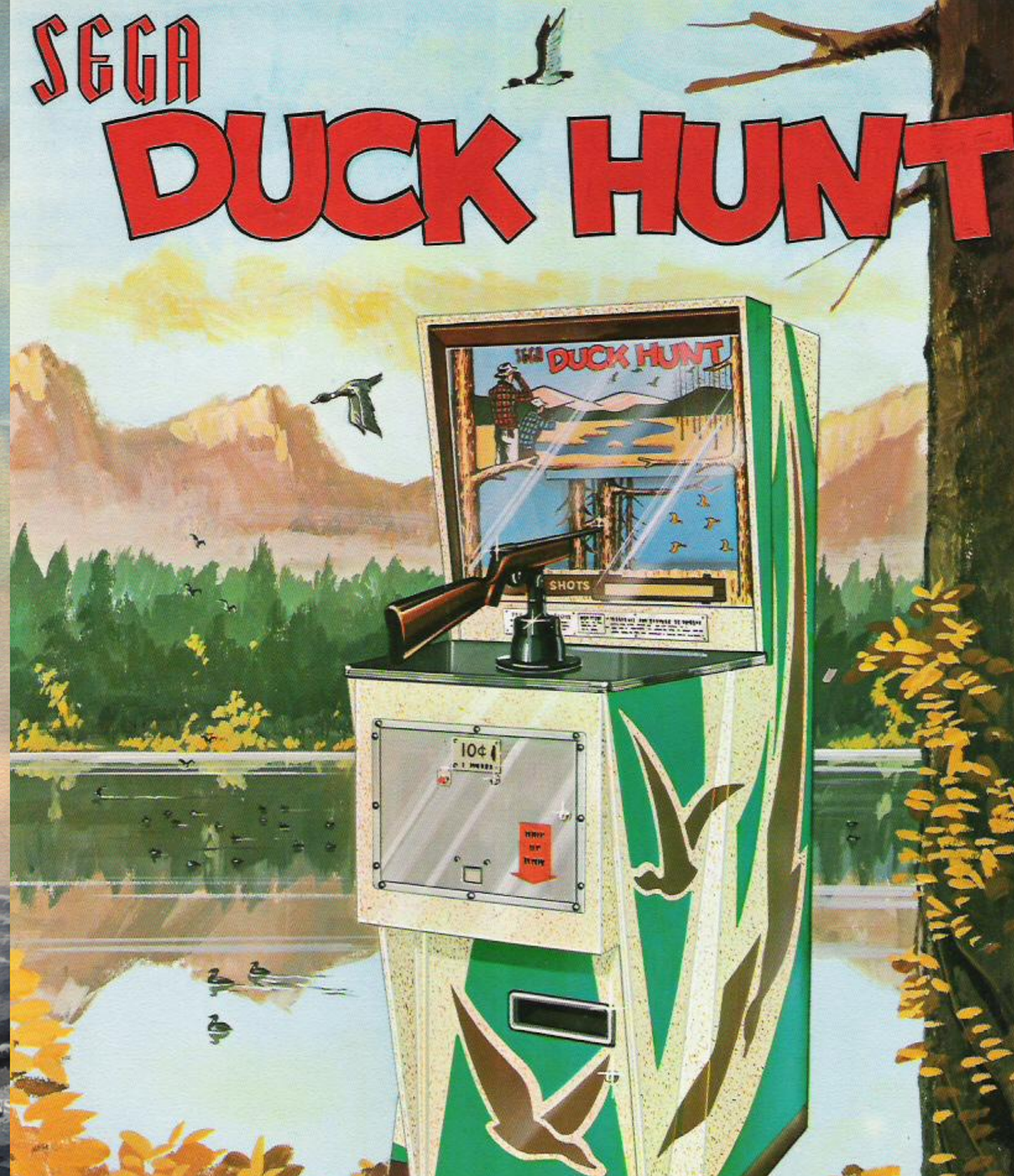
Single units can be banked.

SPECIFICATIONS

Height : 7 Feet
Width : 4 Feet
Depth : 8½ Feet

SEGA

DUCK HUNT



GALAXY GAME

BILL PITTS AND HIGH TUCK (1971)

- Stanford University
- Version of Spacewar! running on a DEC PDP-11/20
- Cost $20,000 to build, 10¢ to play

COMPUTER SPACE

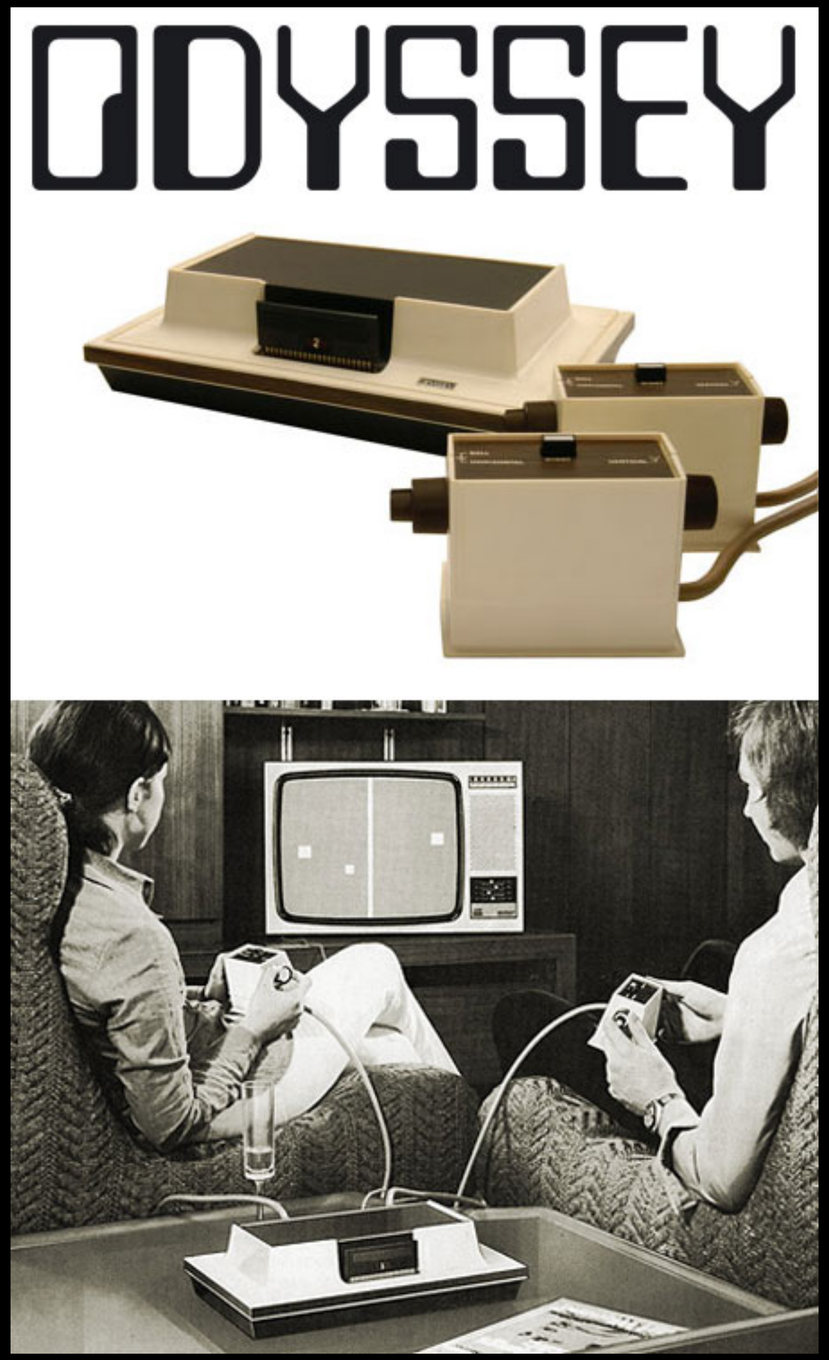
NOLAN BUSHNELL AND TED DABNEY (1971)

- 2 months after Galaxy Game

MAGNAVOX ODYSSEY

RALPH BAER (1972)

- In development since1967. First demonstrated 1972
- First Home Video Game Console, connected to the television set
- Games: *Table Tennis, Simon Says*



PONG

ATARI | NOLAN BUSHNELL AND AL ALCORN (1972)

- First prototype at Andy Capp's bar in Stanford area
- Huge hit

HOME PONG

ATARI | NOLAN BUSHNELL AND AL ALCORN (1975)

- Sold through Sears Roebuck for the Holiday Season
- Sold 150,000 units
- Sued by Magnavox

ADVENTURE

WILLIAM CROWTHER (1975)

- First Text Adventure
- Programmed in Fortran for the PDP-10

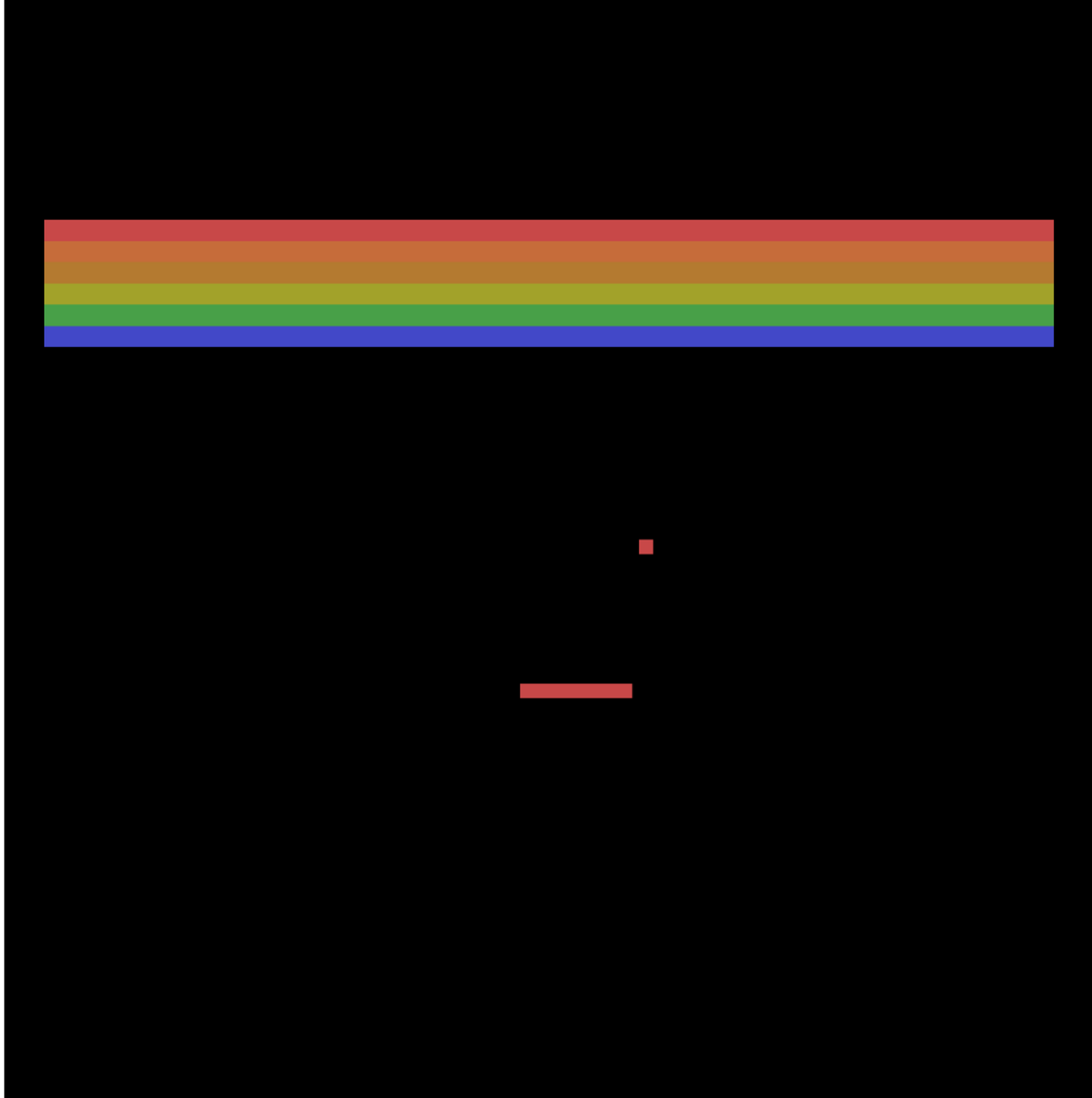
```
PAUSE  INIT DONE statement executed
To resume execution, type go.  Other input will terminate the job.
go
Execution resumes after PAUSE.
 WELCOME TO ADVENTURE!!  WOULD YOU LIKE INSTRUCTIONS?


y
 SOMEWHERE NEARBY IS COLOSSAL CAVE, WHERE OTHERS HAVE FOUND
 FORTUNES IN TREASURE AND GOLD, THOUGH IT IS RUMORED
 THAT SOME WHO ENTER ARE NEVER SEEN AGAIN. MAGIC IS SAID
 TO WORK IN THE CAVE.  I WILL BE YOUR EYES AND HANDS. DIRECT
 ME WITH COMMANDS OF 1 OR 2 WORDS.
 (ERRORS, SUGGESTIONS, COMPLAINTS TO CROWTHER)
 (IF STUCK TYPE HELP FOR SOME HINTS)


 YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
 BUILDING . AROUND YOU IS A FOREST. A SMALL
 STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.
```

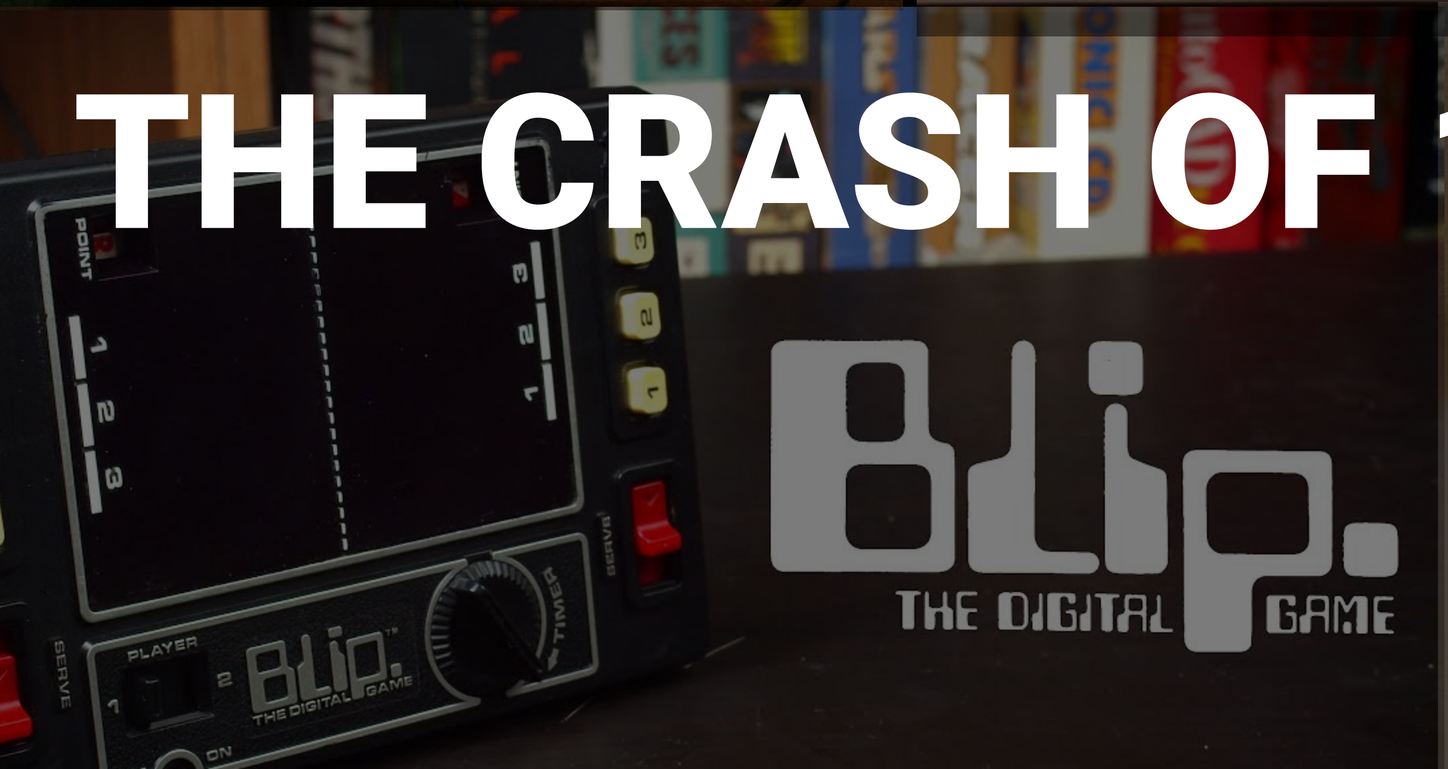
BREAKOUT

ATARI | STEVE JOBS AND STEVE WOZNIAK (1976)



THE CRASH OF 1977

TOO MANY PONGS



nIGHTFALLCREW.com

RESURGENCE!

ATARI VCS

1977

- Atari Video Computer System
- or 2600

SPACE INVADERS

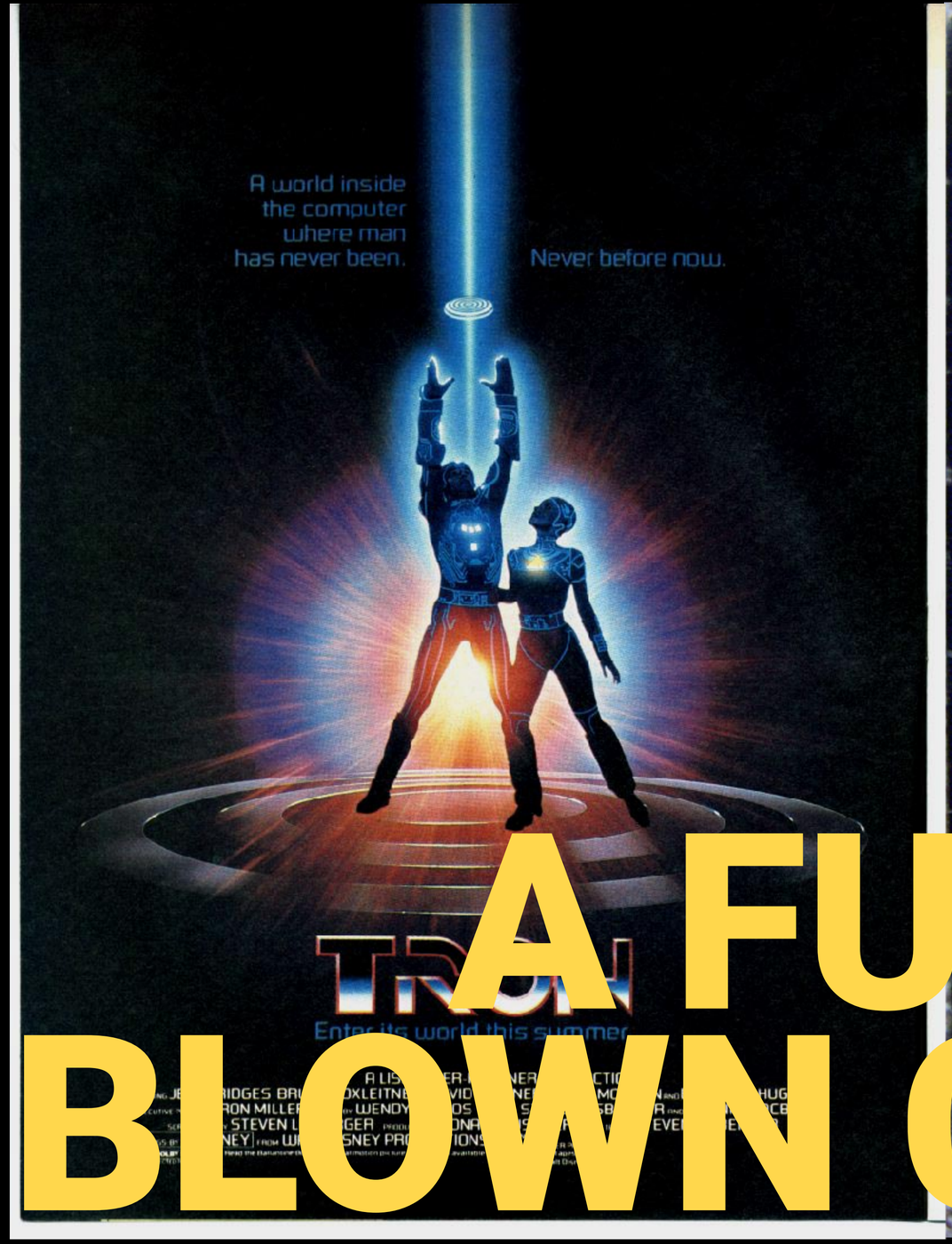
1978

- Supposedly creates a shortage of the 100 yen coin in Japan
- Sold 60,000 machines in its first year

PAC-MAN

1980

- One of the highest grossing arcade games of all-time
- Earned $2.5 billion (in quarters!) by 1990



A FULL BLOWN CRAZE

CONSOLES!

A SECOND CRASH (1983)

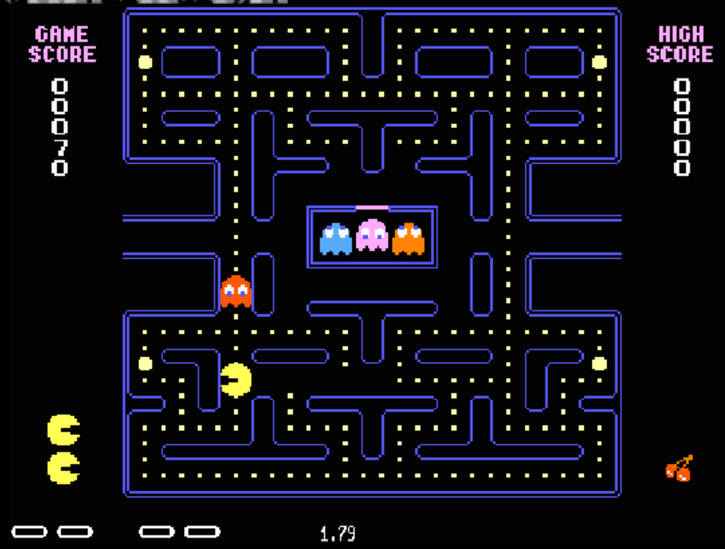
RENAISSANCE

the 1980s and 1990s

NES

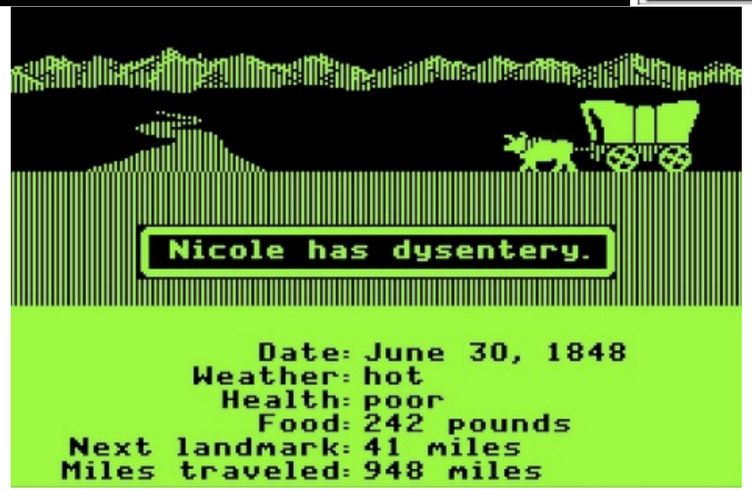
1985

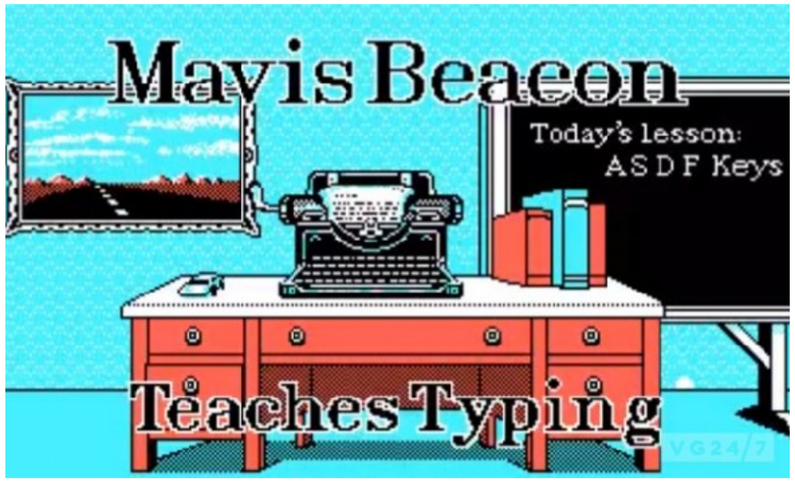
- Nintendo Entertainment System
- Introduces a strong story-telling element to game design
- Strict guidelines for third party developers
- Becomes a huge success



BIRTH OF DYNASTIES

EDUCATIONAL GAMES

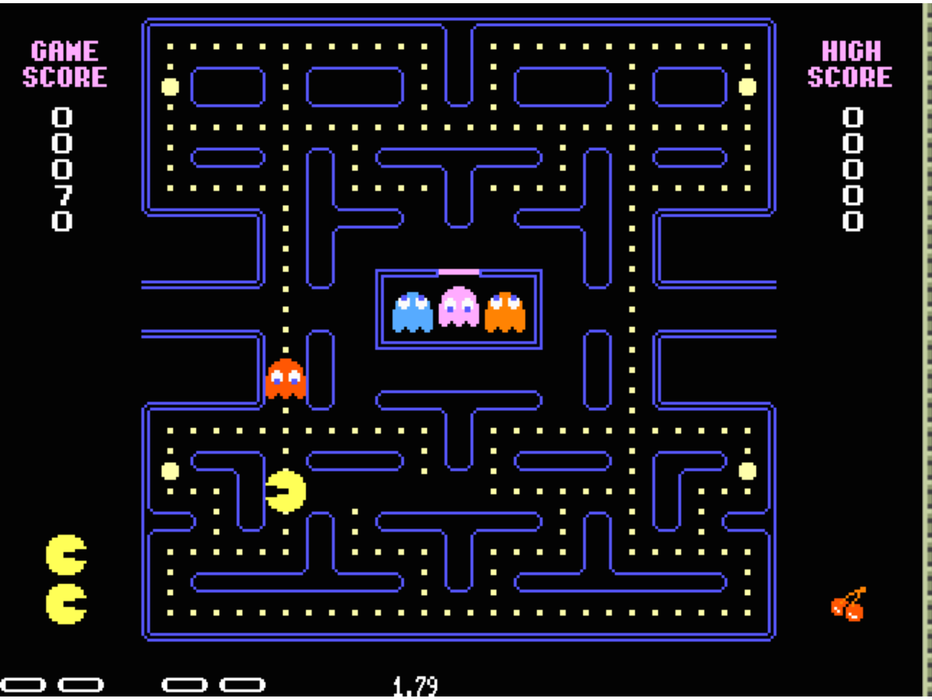


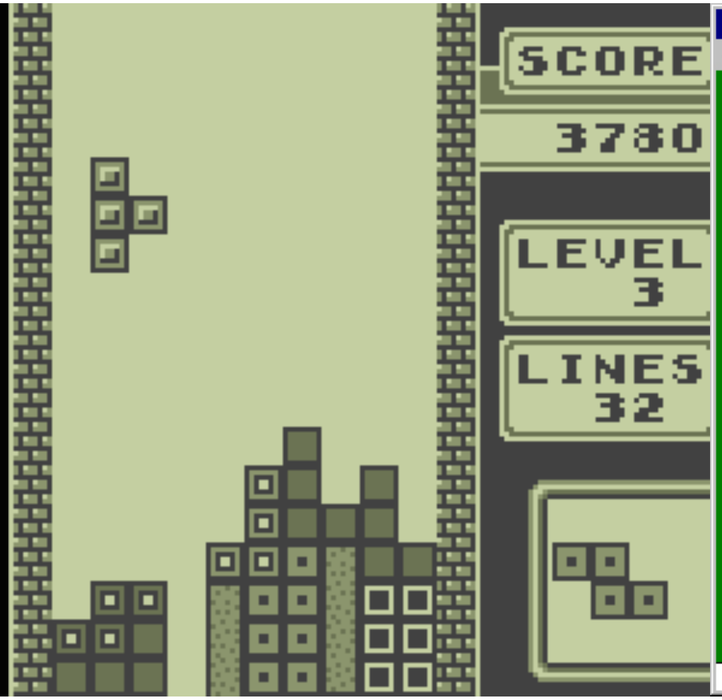


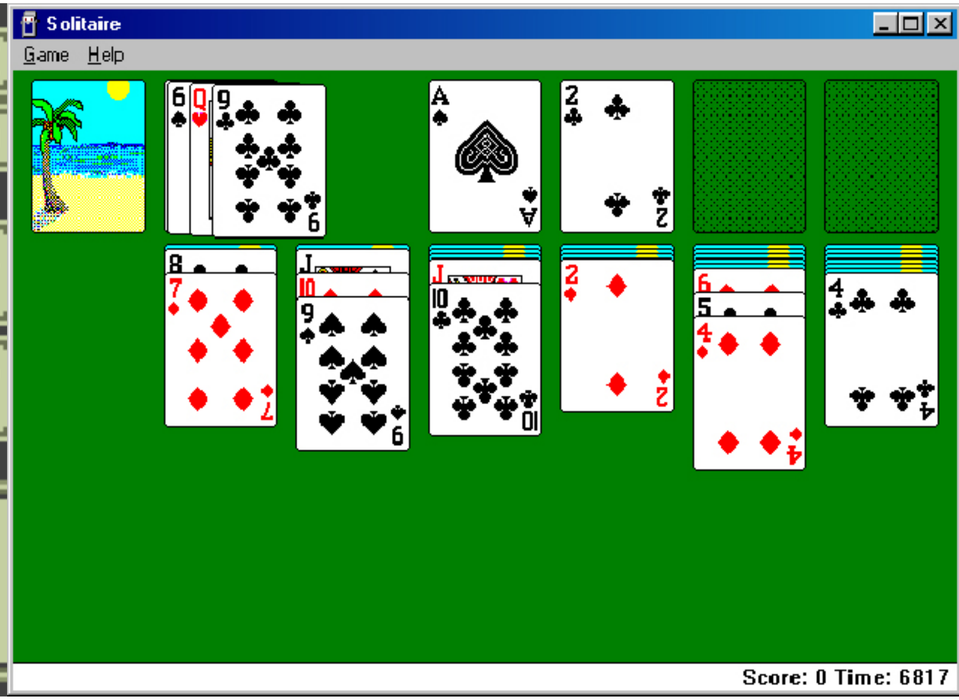
HANDHELD SYSTEMS

EXIT
GAME A
LUIGI
ACL
QUIT
MARIO BROS.
MISS
AM
PM
12:00
GAME B
GAME A
GAME B
ABOUT
MARIO
GAME & WATCH
WWW.GAMEANDWATCH.COM.AR

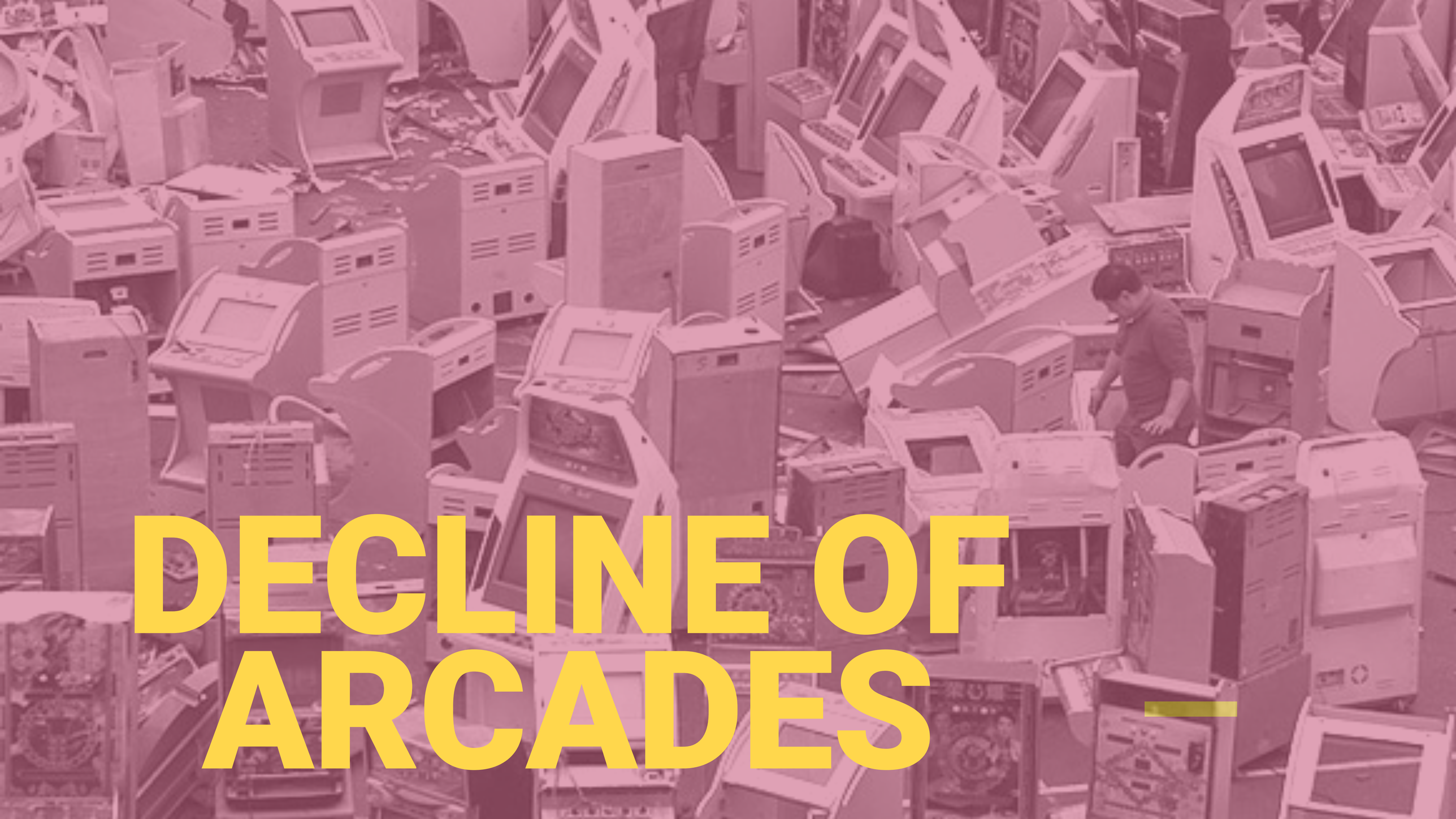
CASUAL GAMES







4TH GEN CONSOLES



DECLINE OF ARCADES

POINT & CLICKS

SEGA FINDS ITS HERO

1991

- Sony introduces Sonic the Hedgehog on the Genesis (MegaDrive)
- First 16 bit success-story

DOOM

1993

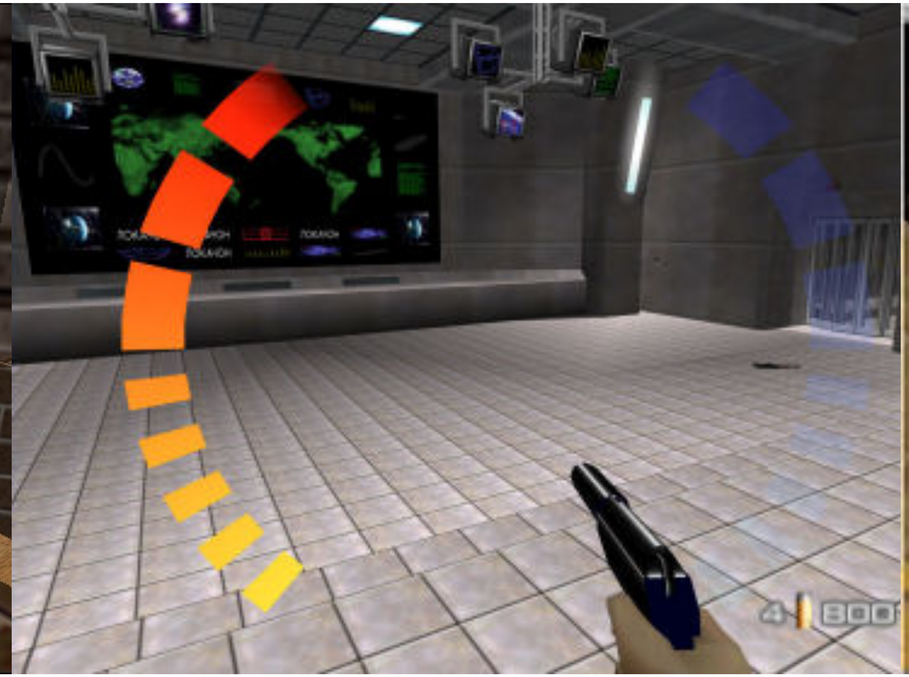
- id Software releases *Doom* to the world
- The first third of the game is released as Shareware
- A breakout hit, it popularizes the First-Person Shooter genre and legitimizes shareware as a distribution option.

CENSORSHIP

348000

KITCHEN
ACCESS
PURPLE
POSSIBLE 50
CAPTURED 20
12:05
TRAP
PAUSE

3D!



ULTIMA ONLINE

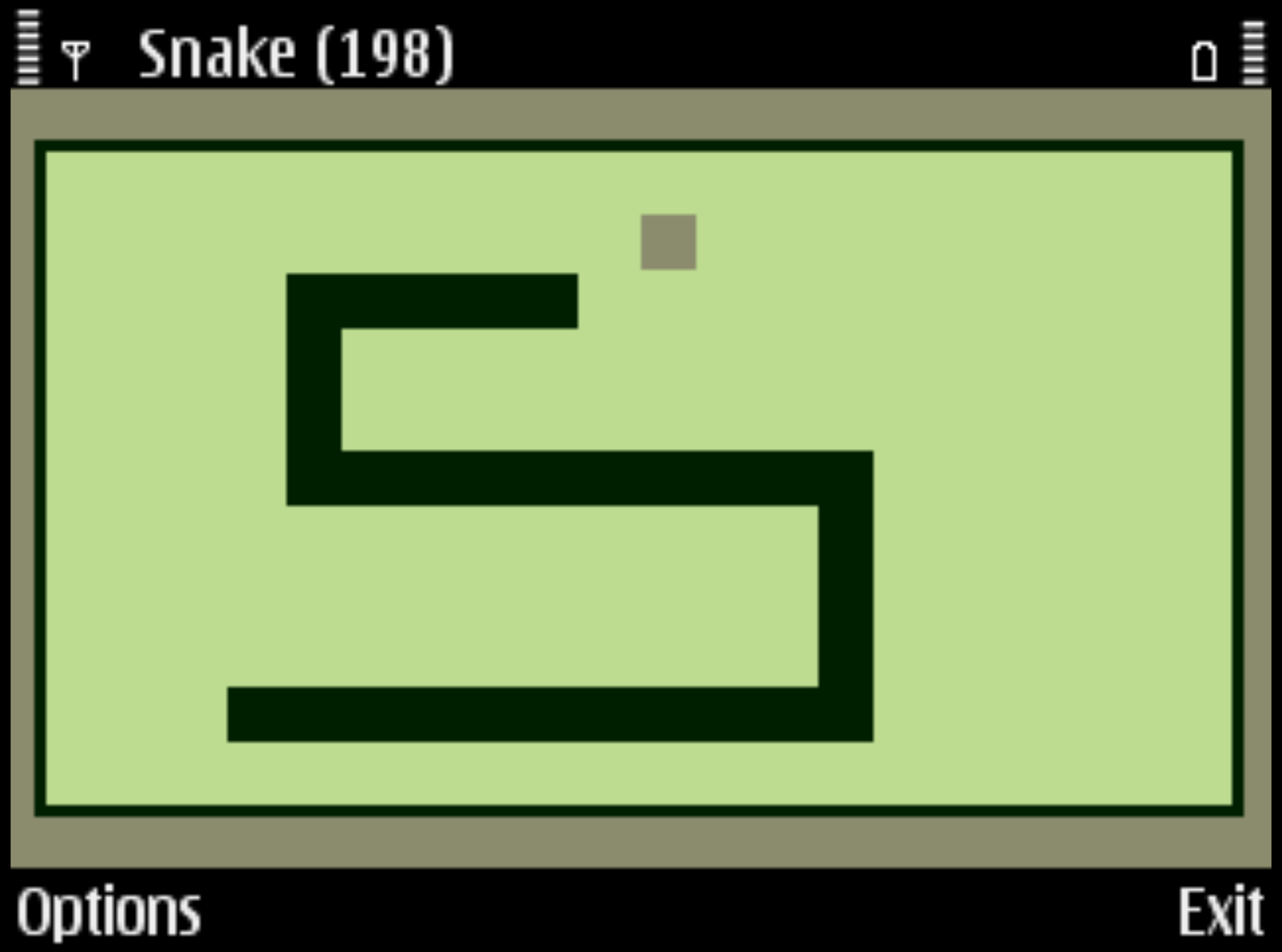
1997

- Very successful. Reached 100,00 paid subscribers in the first 6 months.
- Opened the doors for many other MMO franchises.

SNAKE

1997

- Included by Nokia on every 6110 it sells
- Launches the idea of mobile phones as gaming platforms and "Time Killer" games



REFINEMENT

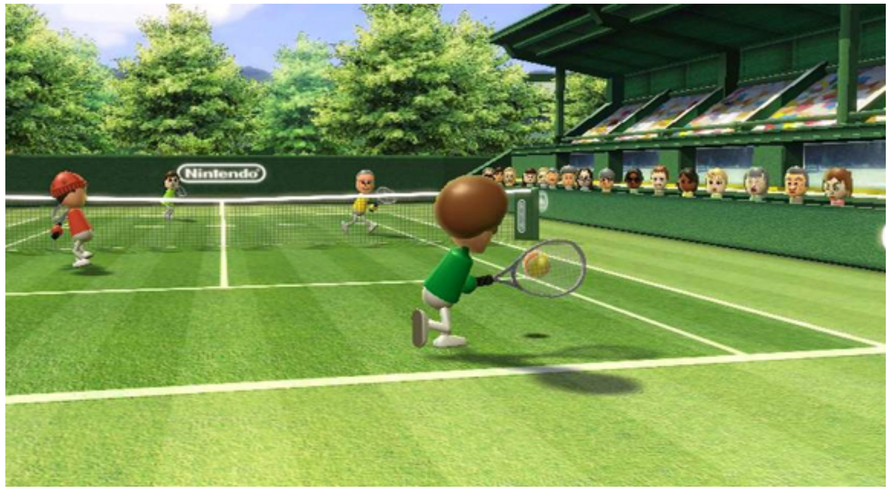
the 21st Century

SO MANY CONSOLES

MOD CULTURE

PLAYING ONLINE

MOBILE / CASUAL



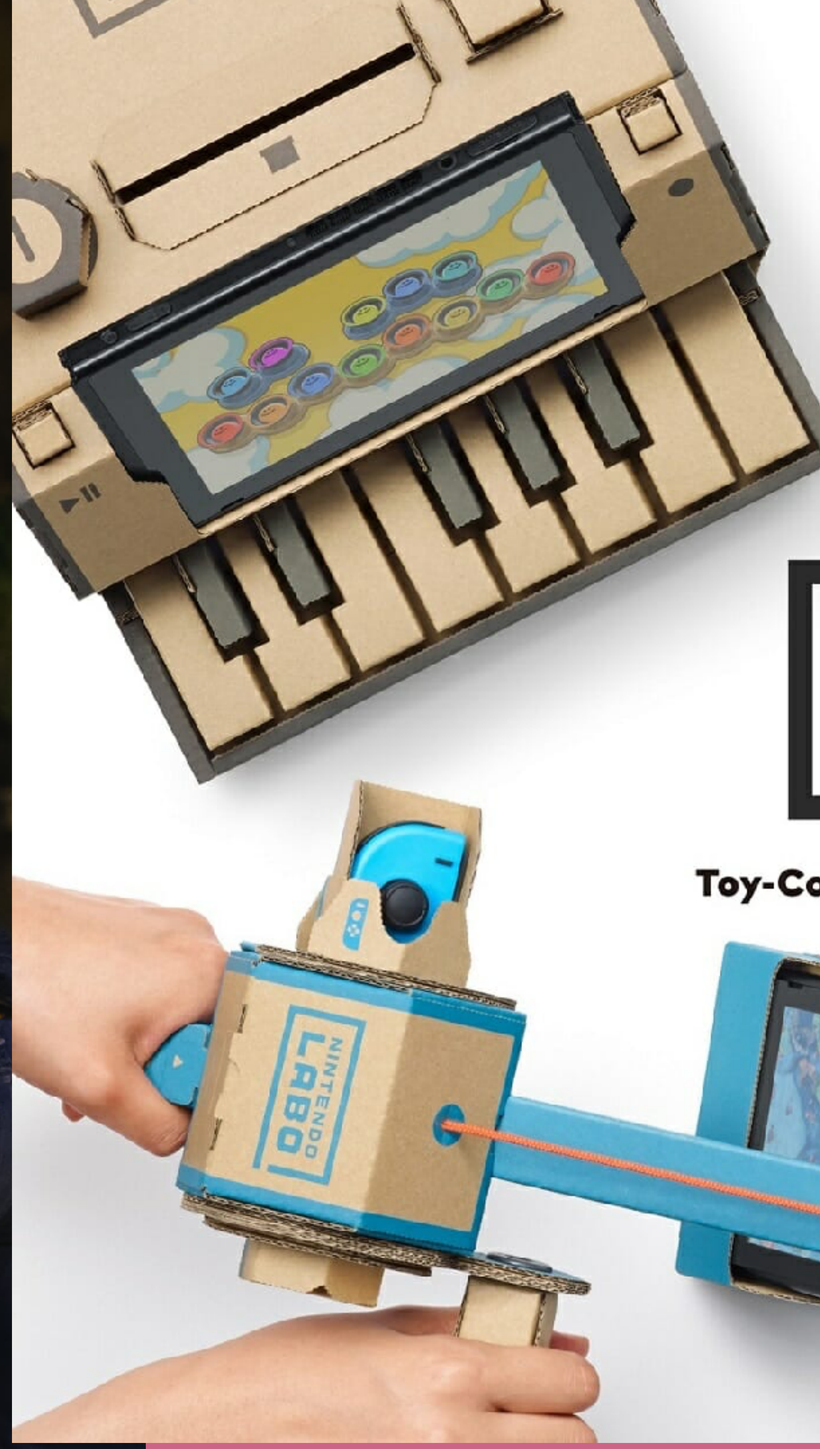
MOTION

MICROCONSOLES

VR

Eco roof
Cameras
Security
HVAC
Central Controls
Water
Treatment
Rainwater
Capture and filtration

NEW PARADIGMS

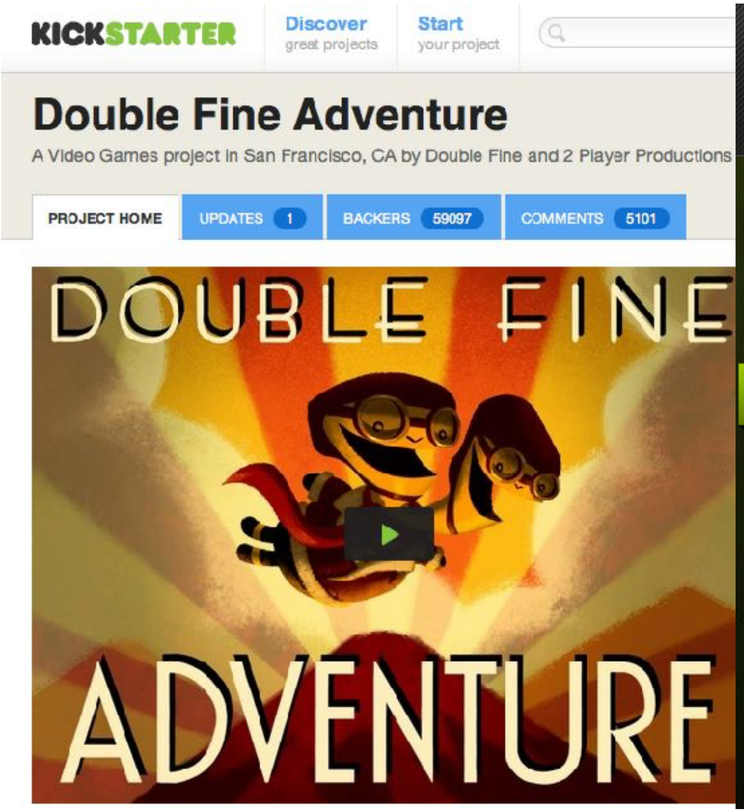


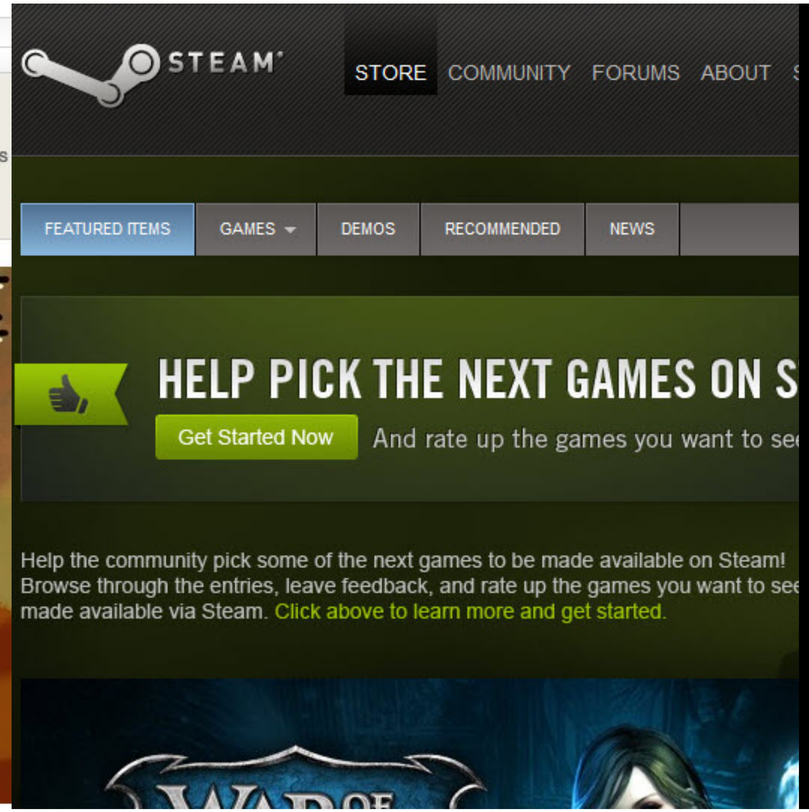
$1 Billion in 3 Days

$241.6 Million
First 5 Days

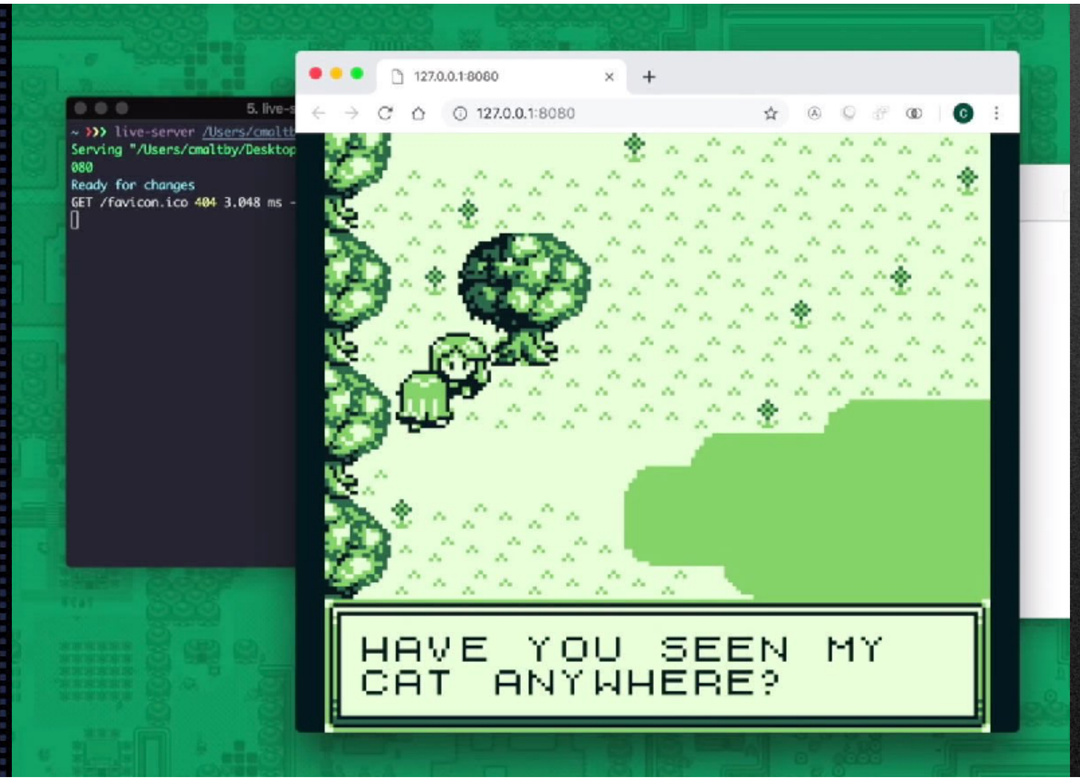
$500 Million
Total

NEW DISTRIBUTION MODELS





TINY GAME DEV



WHAT'S NEXT?

CART 315

GAME PROTOTYPING

M Bethancourt

C#/UNITY CRASH COURSE —

intensive 4 weeks

SHMUMP REMIX

individual over 5(ish?) weeks

focus on design principles

ORIGINAL GAME

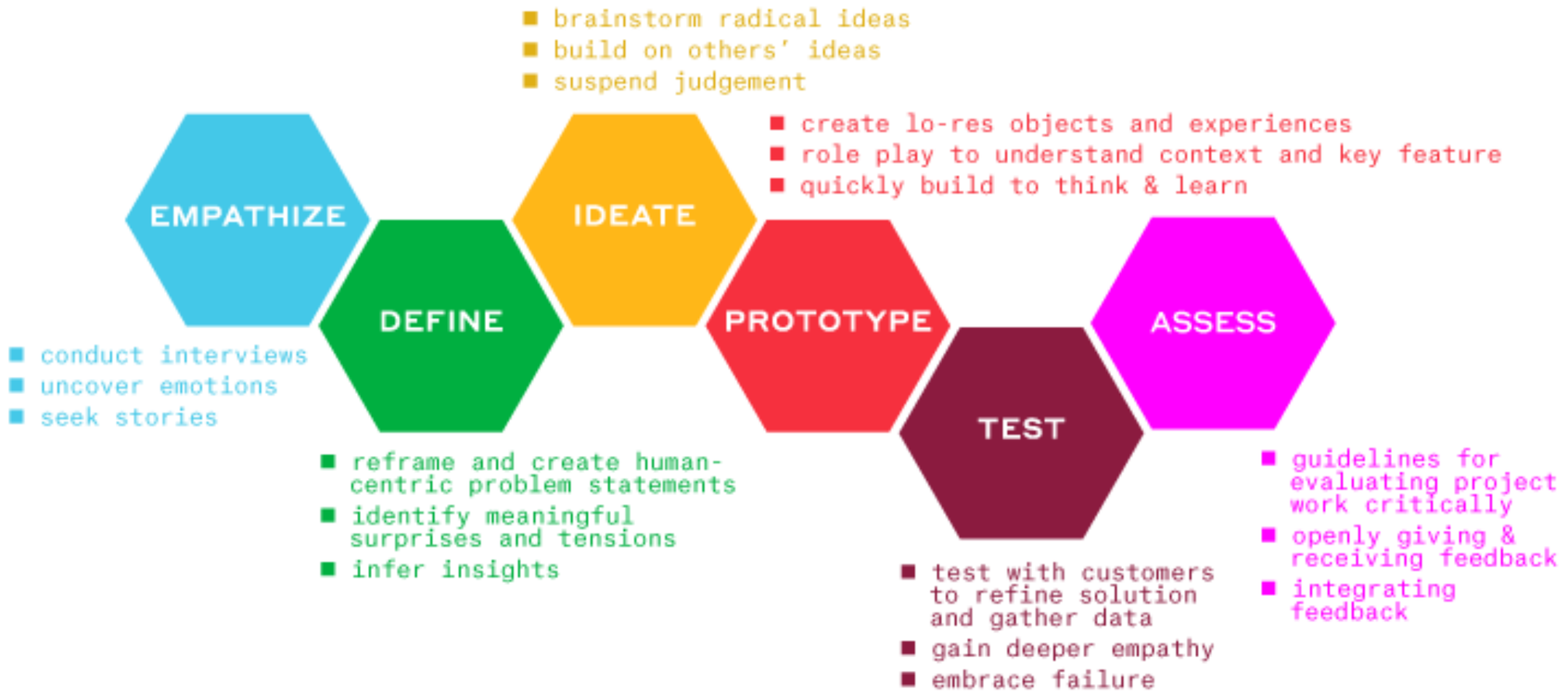
6 week individual/
group project

prototype explorations
and iterations

BUT FIRST!

PROTOTYPING

Design Thinking Process Diagram*



d.school Executive Education

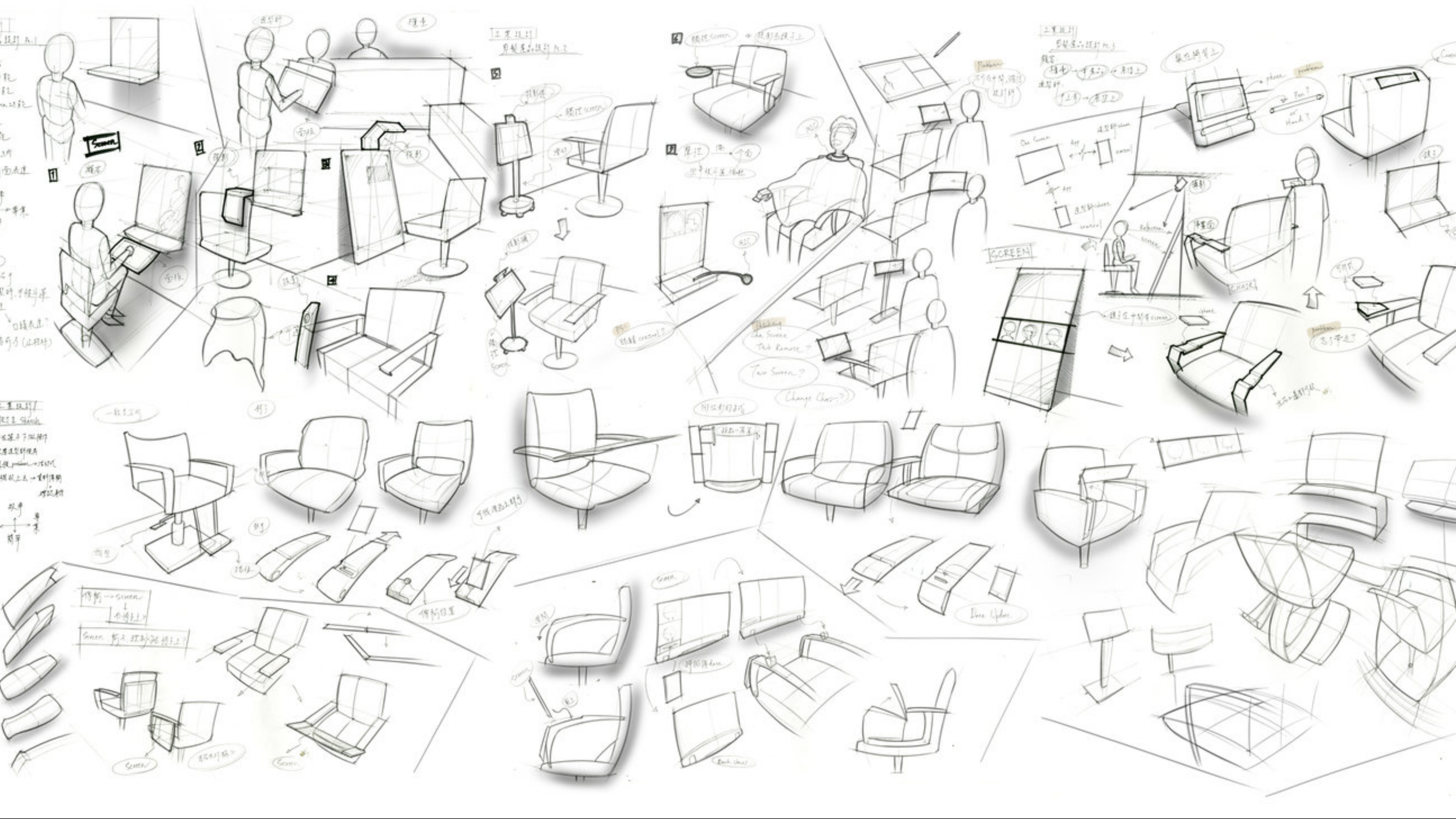
Hasso Plattner Institute of Design at Stanford University

*not necessarily linear, apply as needed ©2019

https://dschool.stanford.edu/executive-education/dbootcamp

PROTOTYPUS

“FIRST EXAMPLE”


SCREEN
Two Screen
Change Chair
Data Update
Back (Ins)

LINCOLN

128
19
26
IMU
ENV

DESIGN VS. ART

Large Weapon
Proficiency
Large Weapon
Weight
Dexter
The Opponent
Anne the Gunslinger
Leader
The Speculator
The Risk Taker
Cross-Eyed Jim
Leader
Cattle
Wood
Medicine
$1 - Change Die
$3 - Small Weapon
$10 - Large Weapon

WHAT MAKES A SUCCESSFUL PROTOTYPE?

If the prototype expresses an idea: how original, interesting or cool is the idea?

If the prototype tests a hypothesis, did it test that hypothesis successfully?

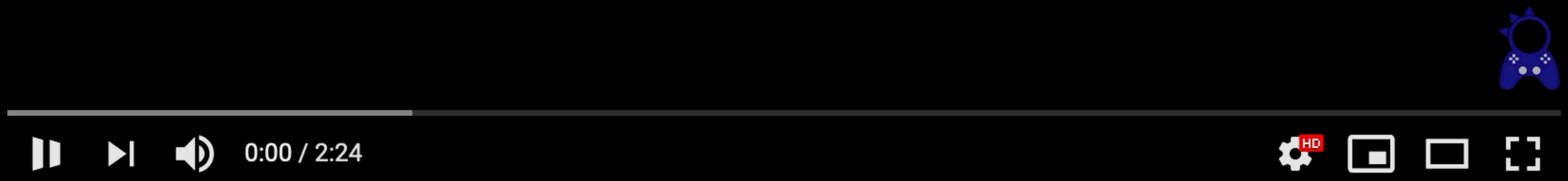
Does your prototype prove conclusively that you should do more work on it, or that you shouldn’t?

DESIGN GOAL

What is the idea or hypothesis that you want to explore?

Example: Is a game about Mouse Marriage is interesting?

Example: Is a game with multiple languages (and no translating) is going to be engaging for the player?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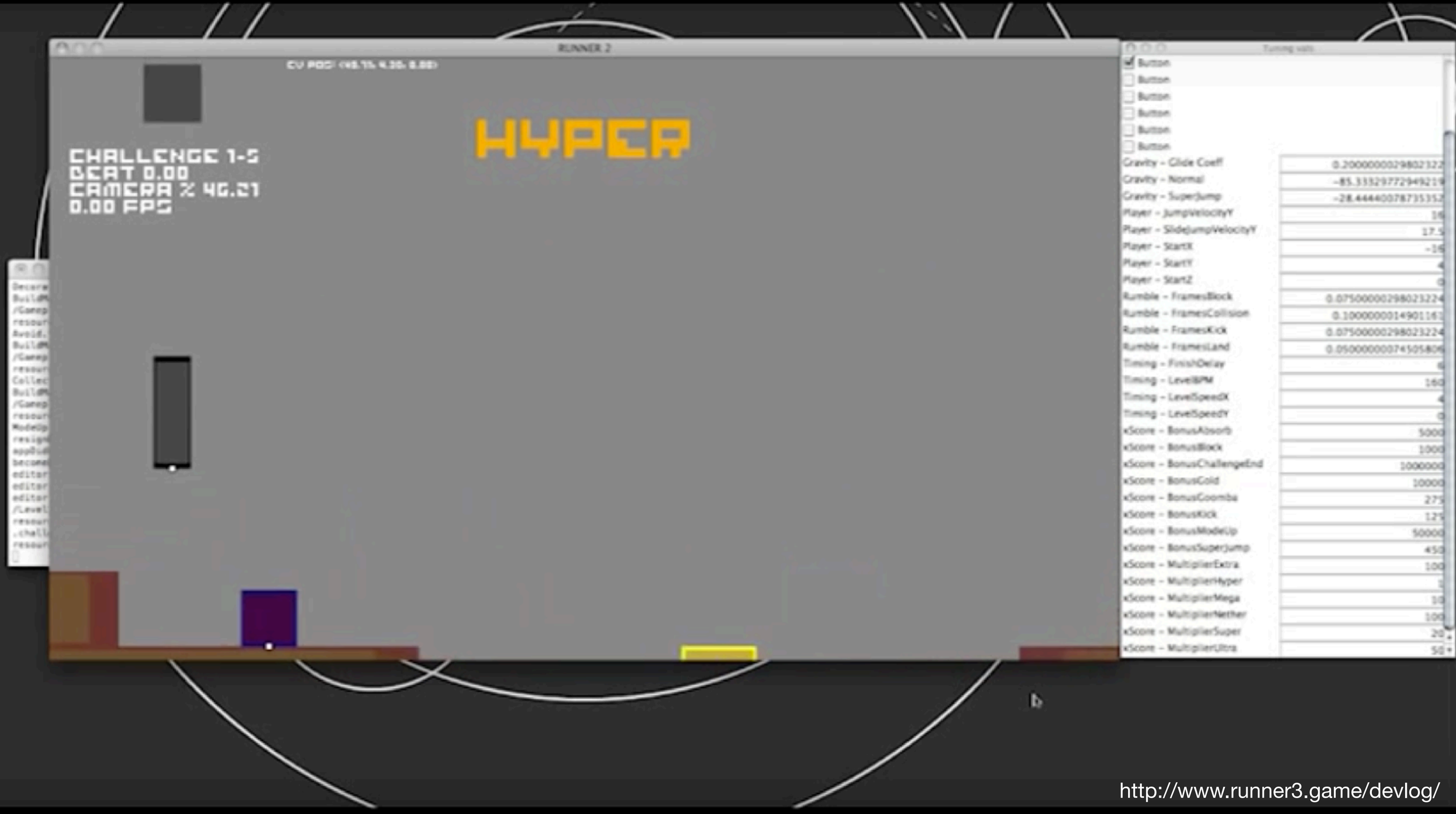
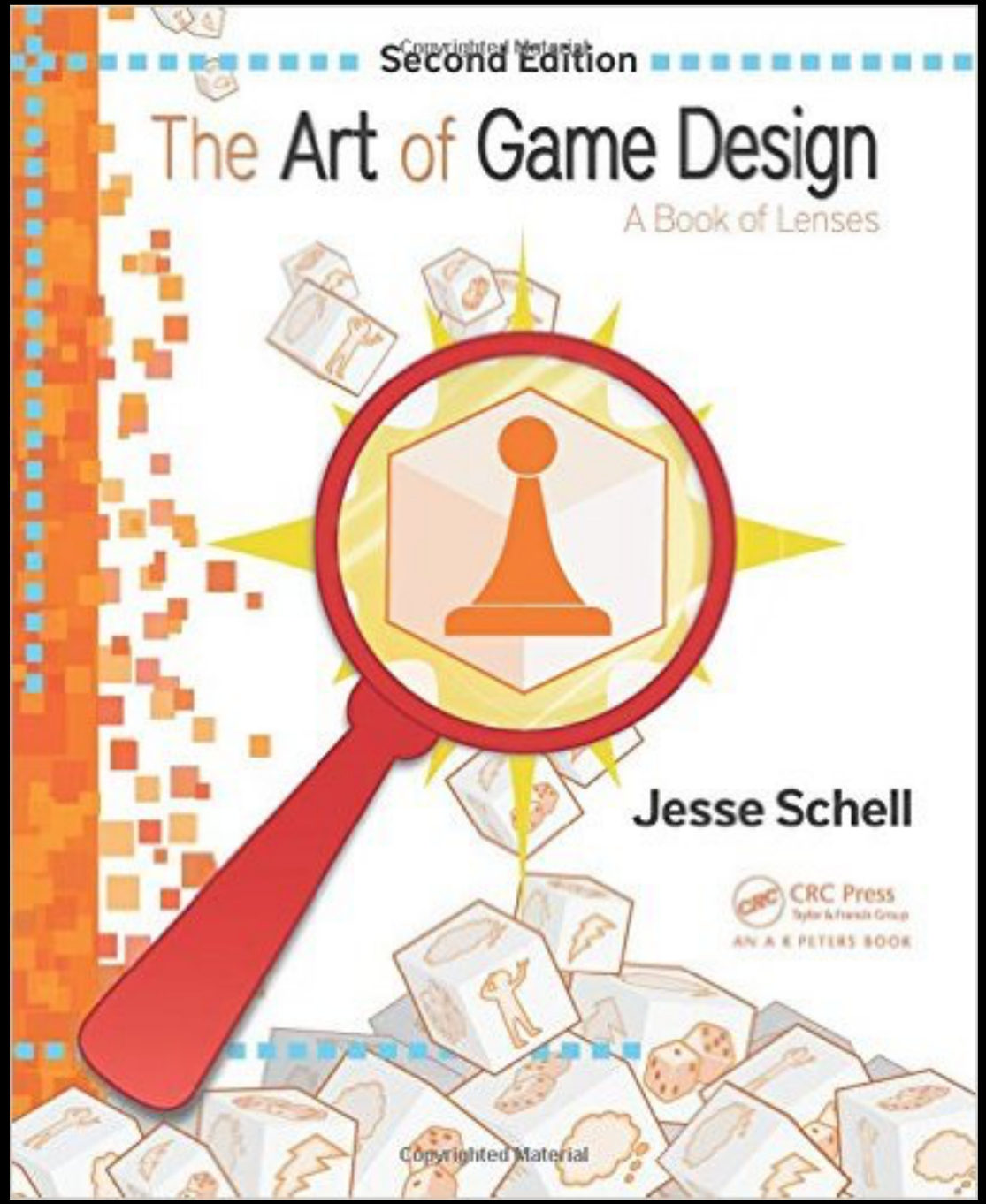
HD

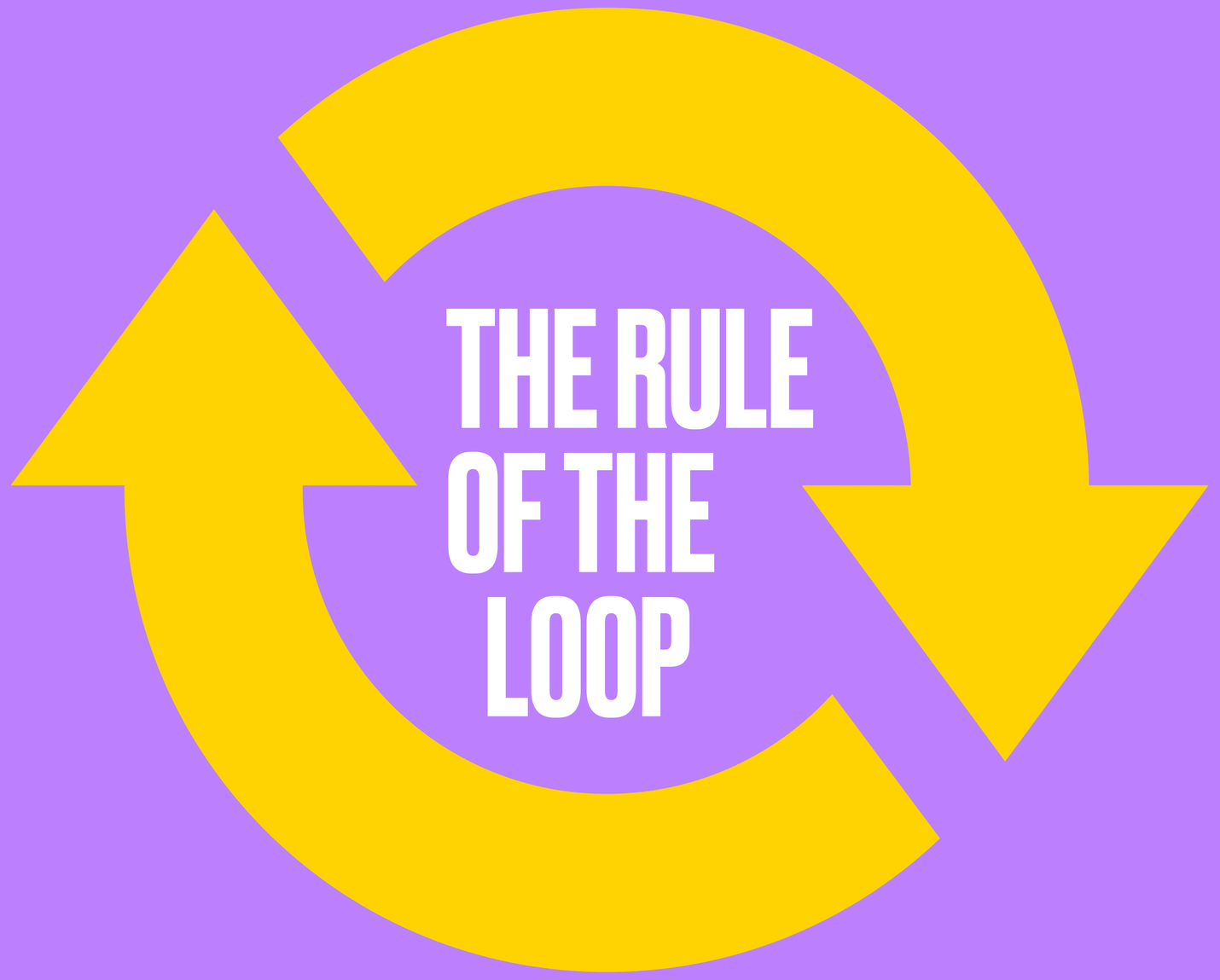
RUNNER3
MECHIKNIGHT
http://www.runner3.game/devlog/
CHOICEPROVISIONS



http://www.runner3.game/devlog/

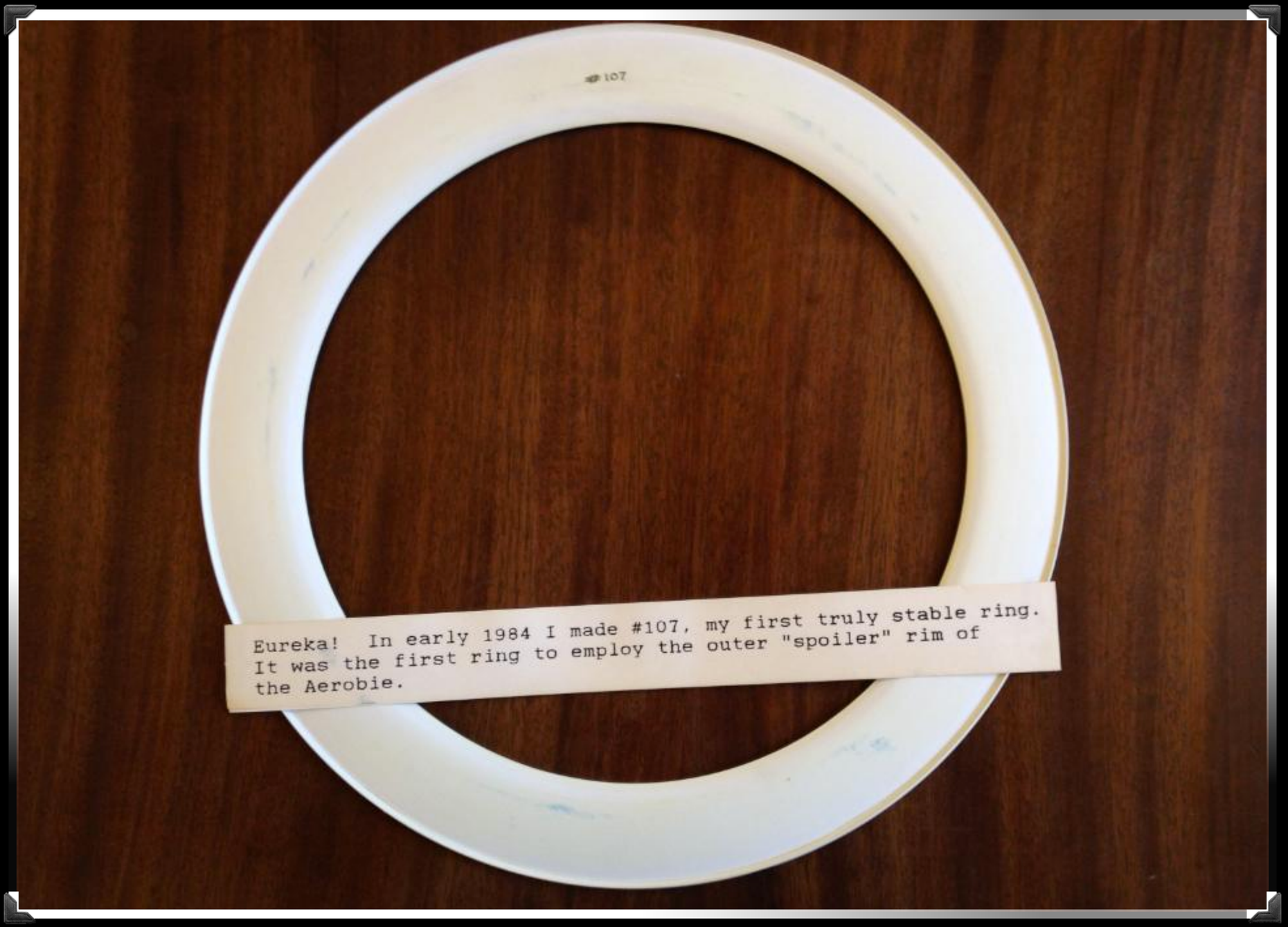
ITERATION


Second Edition
The Art of Game Design
A Book of Lenses
Jesse Schell
CRC Press
AN A K PETERS BOOK



The more times you test and improve your design, the better your game will be.

https://priceonomics.com/the-invention-of-the-aeropress/



https://priceonomics.com/the-invention-of-the-aeropress/

Q1? HOW CAN I MAKE EVERY LOOP COUNT? ***Assess your risks and mitigate them***

Q2? HOW CAN I LOOP AS FAST AS POSSIBLE? ***Build many rough prototypes***

TIPS FOR PRODUCTIVE PROTOTYPING

#1 Answer a Question

#2 Forget Quality

#3 Don’t Get Attached

#4 Prioritize Your Prototypes

#5 Parallelize Prototypes Productively

#6 It Doesn’t Have to be Digital

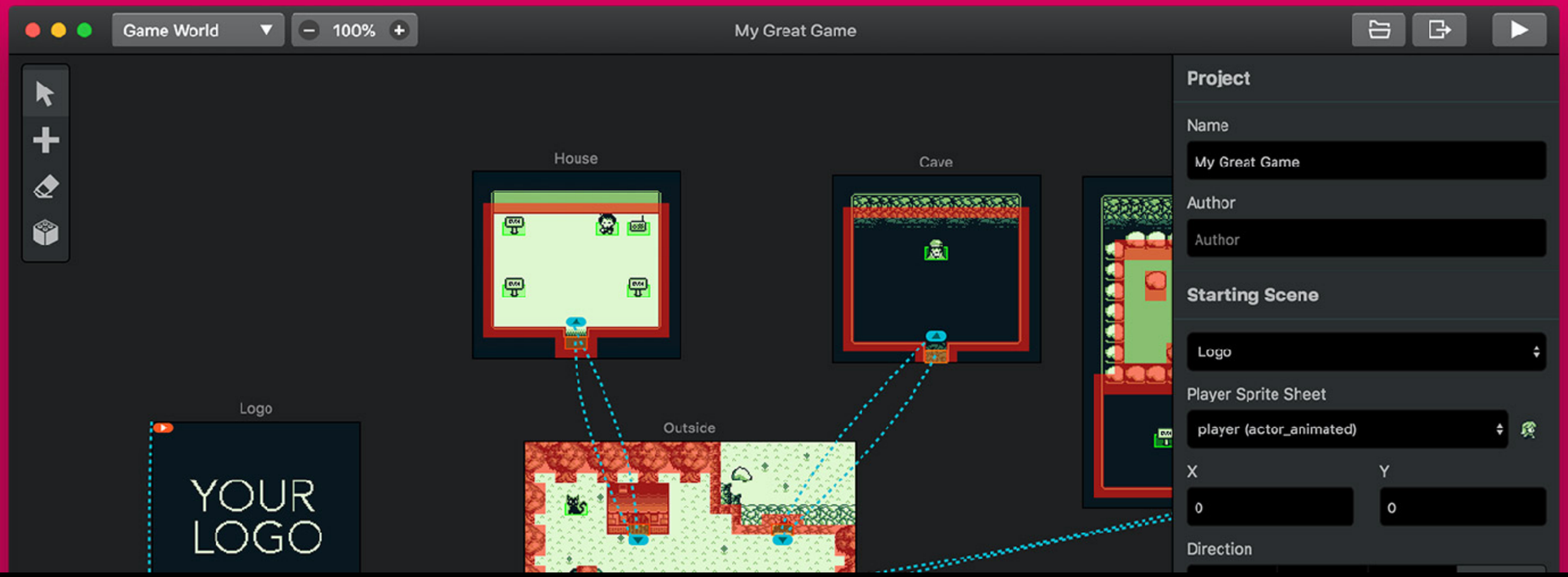
FAIL FAST, FAIL OFTEN

unity

TOOLS

013
0
1
2
3
VIEW X:000 Y:000

GB Studio


Game World
100%
My Great Game
House
Cave
Logo
YOUR LOGO
Outside
Project
Name
My Great Game
Author
Author
Starting Scene
Logo
Player Sprite Sheet
player (actor_animated)
X
Y
0
0
Direction

Bitsy

Write your game's title here

about

Bitsy Docs

About Bitsy

On this page

About Bitsy

> hi! bitsy is a little editor for little games or worlds.
> the goal is to make it easy to make games where you can walk around and talk to people and be somewhere.
>
> have fun making things with bitsy!
>
> – *adam*

Getting started

Here are good pages to start learning about Bitsy! :)

- Start with an overview of the Bitsy editor

room

example room

edit | colors | tune | avatar

paint | pick | exits & endings

grid | walls

paint

avatar | tile | sprite | item

avatar

grid

animation

inventory

items | variables

tea : 0

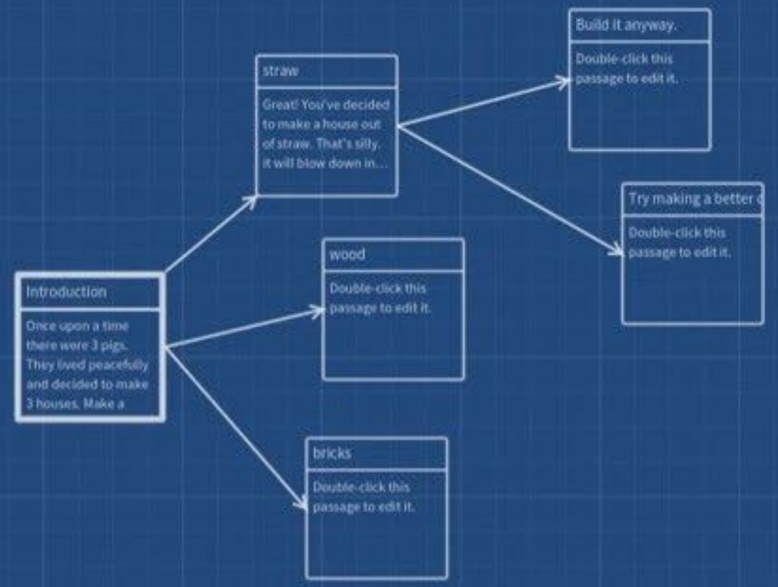
key : 0

powered by Screencastify Lite

AGENDA for Wed Mar 9 - | My Drive - Google Drive | Story Writing - Integrated | Editing "The 3 Pigs"

twinery.org/2/#stories/8f0073c9-bdb5-81a0-afbe-f5b67a29a265

Bookmarks | Papercut | T | HEAT | 1 Story | Risevision | Edit Audio | Other bookmarks



The 3 Pigs | Quick Find | Test | Play | Passage

tutorial.ink

No issues.

```
LONDON, 1872
Residence of Monsieur Phileas Fogg.
-> london

=== london ===
Monsieur Phileas Fogg returned home early from the Reform Club, and
    in a new-fangled steam-carriage, besides!
"Passepartout," said he. "We are going around the world!"

+ "Around the world, Monsieur?"
    I was utterly astonished.
    -> astonished
+ [Nod curtly.] -> nod


=== astonished ===
"You are in jest!" I told him in dignified affront. "You make mock
    of me, Monsieur."
"I am quite serious."

+ "But of course"
    -> ending


=== nod ===
I nodded curtly, not believing a word of it.
-> ending


=== ending
"We shall circumnavigate the globe within eighty days." He was quite
    calm as he proposed this wild scheme. "We leave for Paris on the
    8:25. In an hour."
-> END
```

LONDON, 1872

Residence of Monsieur Phileas Fogg.

Monsieur Phileas Fogg returned home early from the Reform Club, and in a new-fangled steam-carriage, besides!

"Passepartout," said he. "We are going around the world!"

"Around the world, Monsieur?"

Nod curtly.

CART 315

GAME PROTOTYPING

M Bethancourt