



GROUP 10 PRESENTS

# GEMSTONE

*THE* ULTIMATE TIC TAC TOE



# ***INTRODUCTION***

We've combined our skills to develop GEMSTONE, a Tic Tac Toe that includes performant AI and hand tracking features



# *TABLE OF CONTENTS*

**General  
description**

**Can you win ?**

Bot and AI overview

**Mouse clicks ?  
Has-been**

Hand tracking

**What if we had  
more time ?**

Possible ameliorations



# ***GENERAL DESCRIPTION***

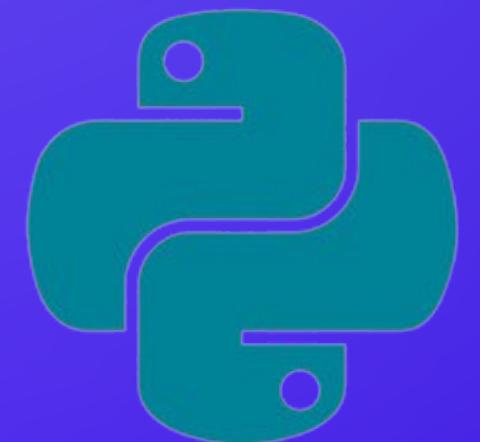
Let's dive into our mine theme GEMSTONE



# *A BIT OF CODING ...*

Why not use Pygame ?

- Everything in Tkinter on Python for more **flexibility**
- Everything in classes to make the code **reusable**



TKinter

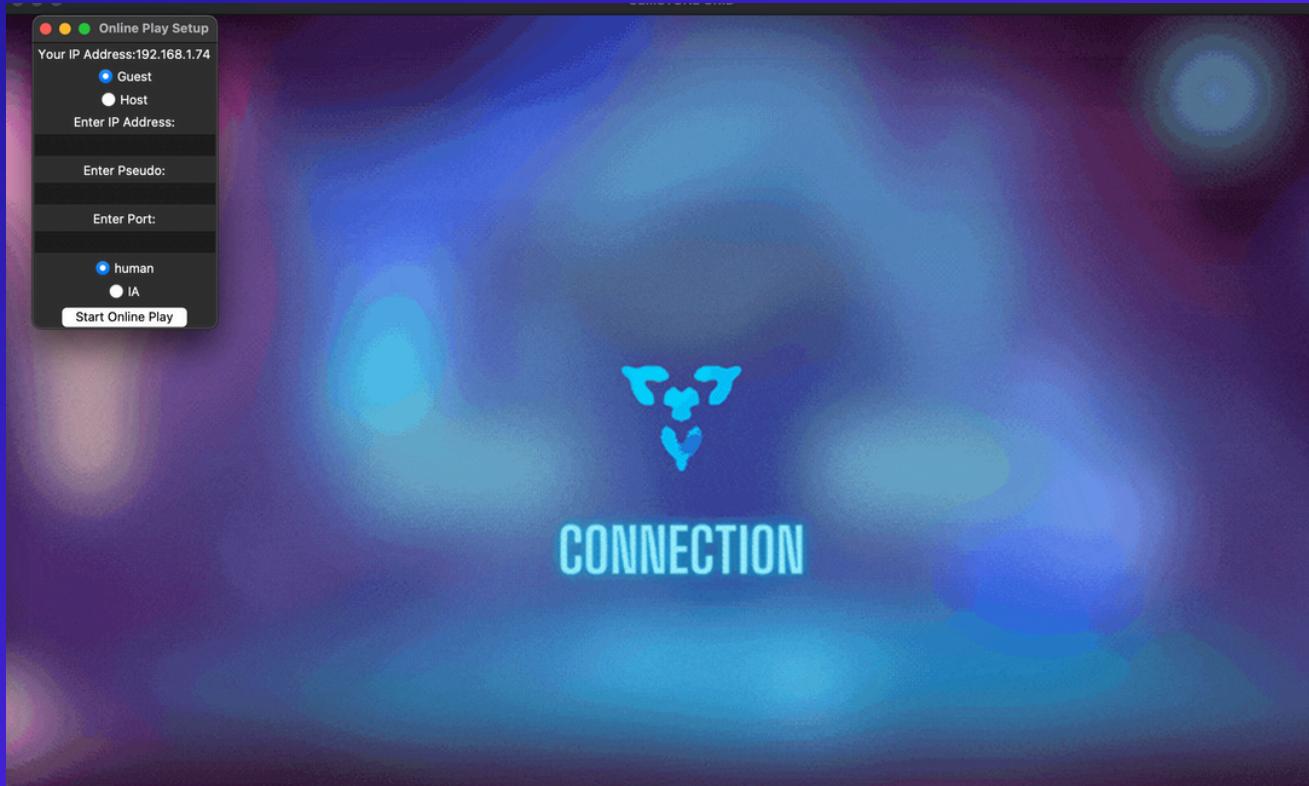


# ***HOW TO START A GAME ?***

First choice to make ? offline or online



# ONLINE



2nd choice to make ?  
host/guest

# OFFLINE

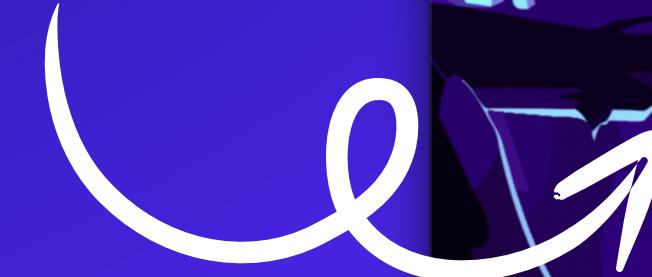


2nd choice to make ?  
against whom ?



# THE HEART OF THE GAME

Progression bar



Parameter button



# AND MORE....



***WHAT ARE YOUR  
CHANCES TO WIN  
AGAINST OUR BOT ?***



# *WHAT ARE YOUR CHANCES TO WIN AGAINST OUR BOT ?*

## EASY

- Speed: The AI plays quickly but lacks long-term strategic vision.
- Difficulty: Easy to beat for an experienced human player, as she doesn't plan several moves in advance.

## MEDIUM

- Balance: The AI is more balanced, planning a few moves in advance, providing a moderate challenge.
- Difficulty: Moderate, harder to beat for intermediate players.

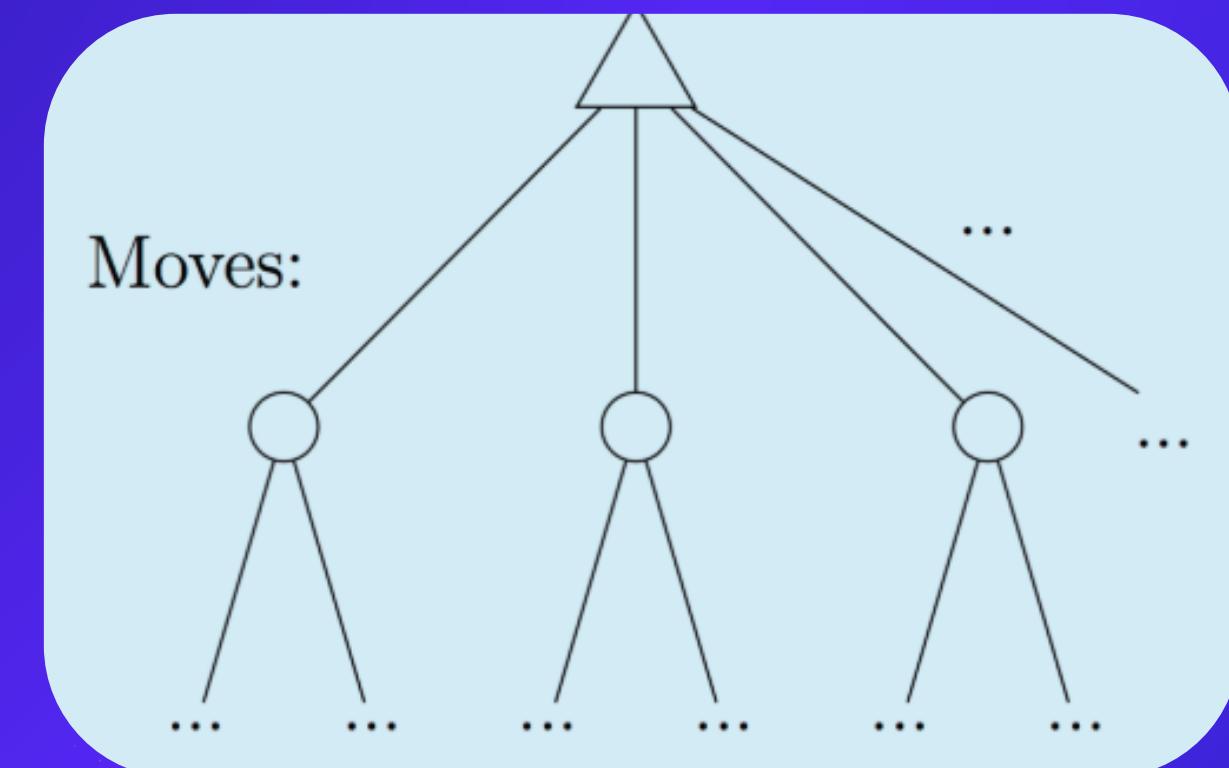
## HARD

- Accuracy: The AI plays almost perfectly, simulating multiple shots in advance with precision.
- Difficulty: Very difficult to beat, often invincible for most human players.



# *HOW IT IS WORKING ?*

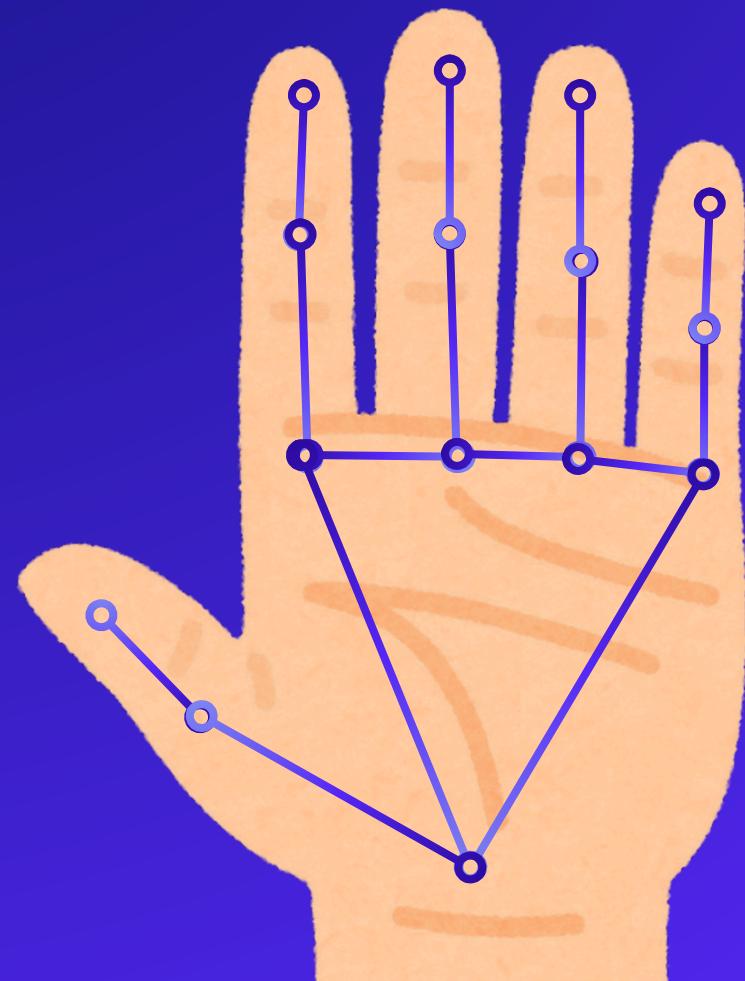
All the moves  
the IA can do



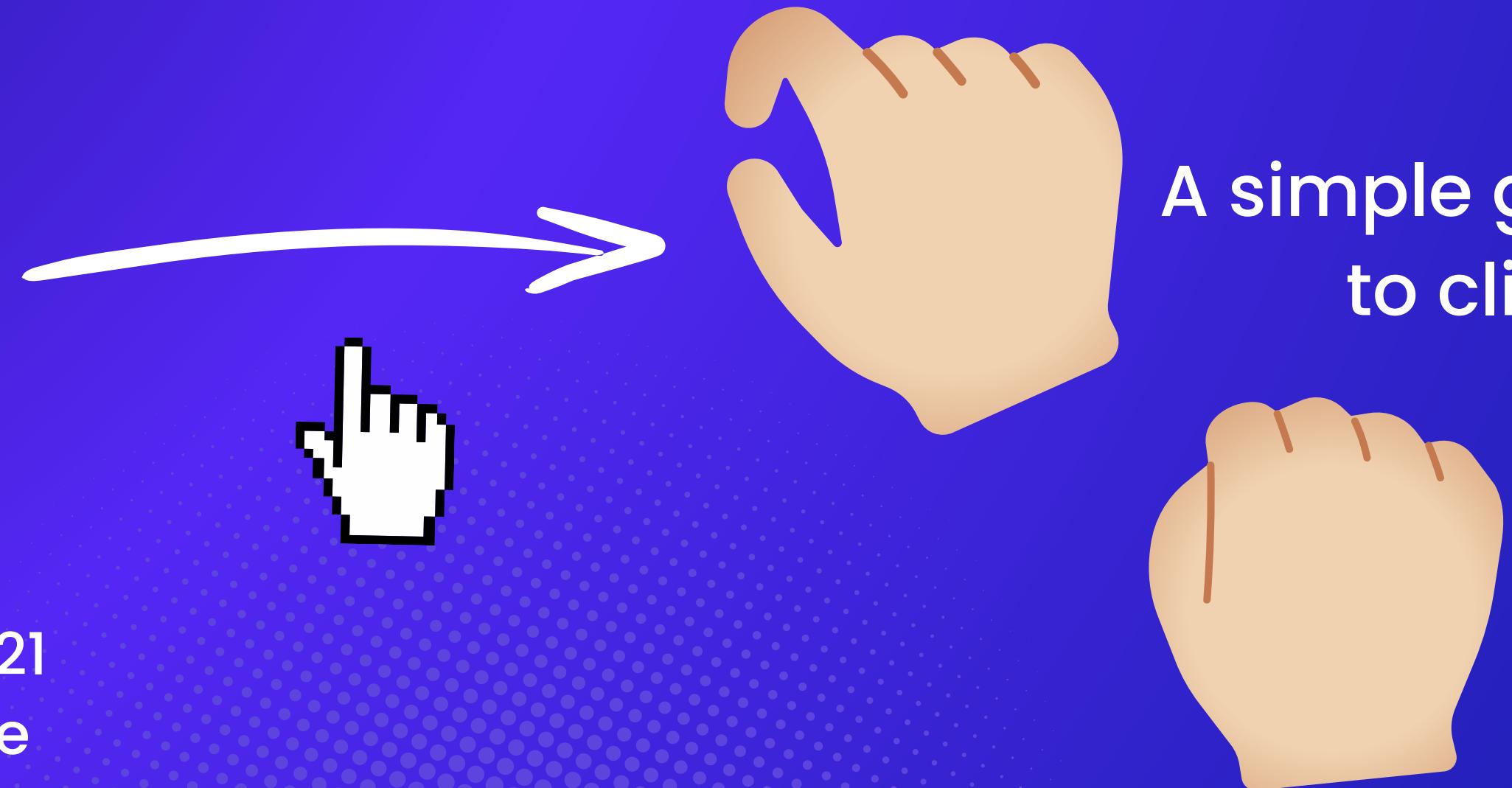
All the moves we  
can do after the IA

# HAND TRACKING

The mouse is your hand !



Precisely located with 21  
joints using mediapipe  
and openCV

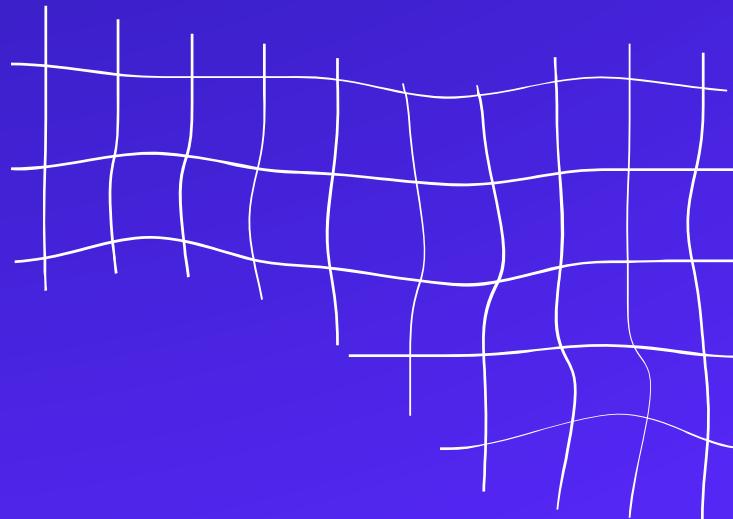


A simple gesture  
to click



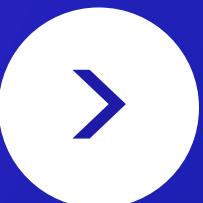
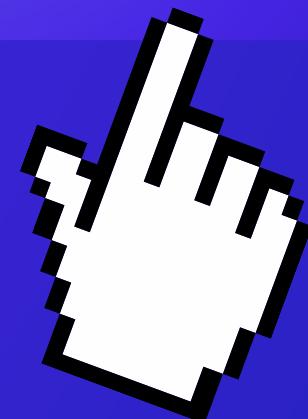
# *EASY SELECTION*

Game mode



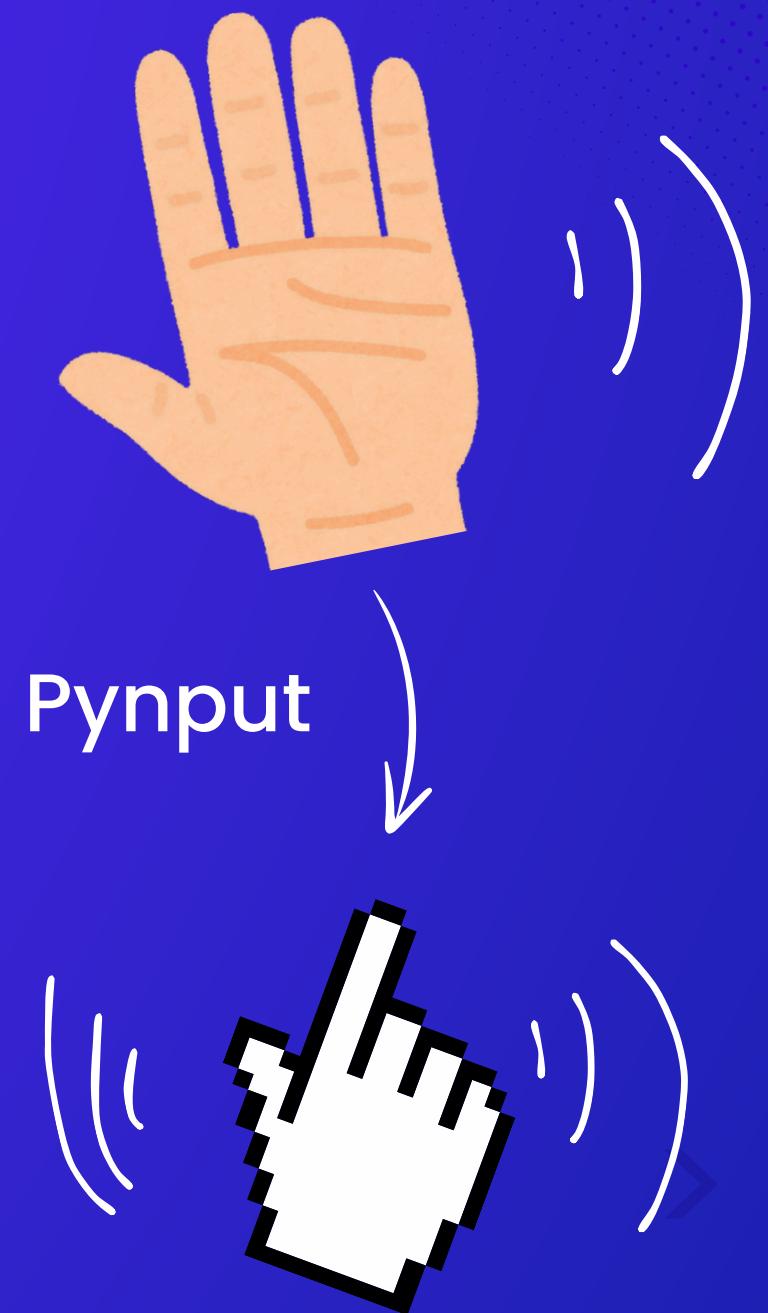
2 different selection  
modes

Menu mode



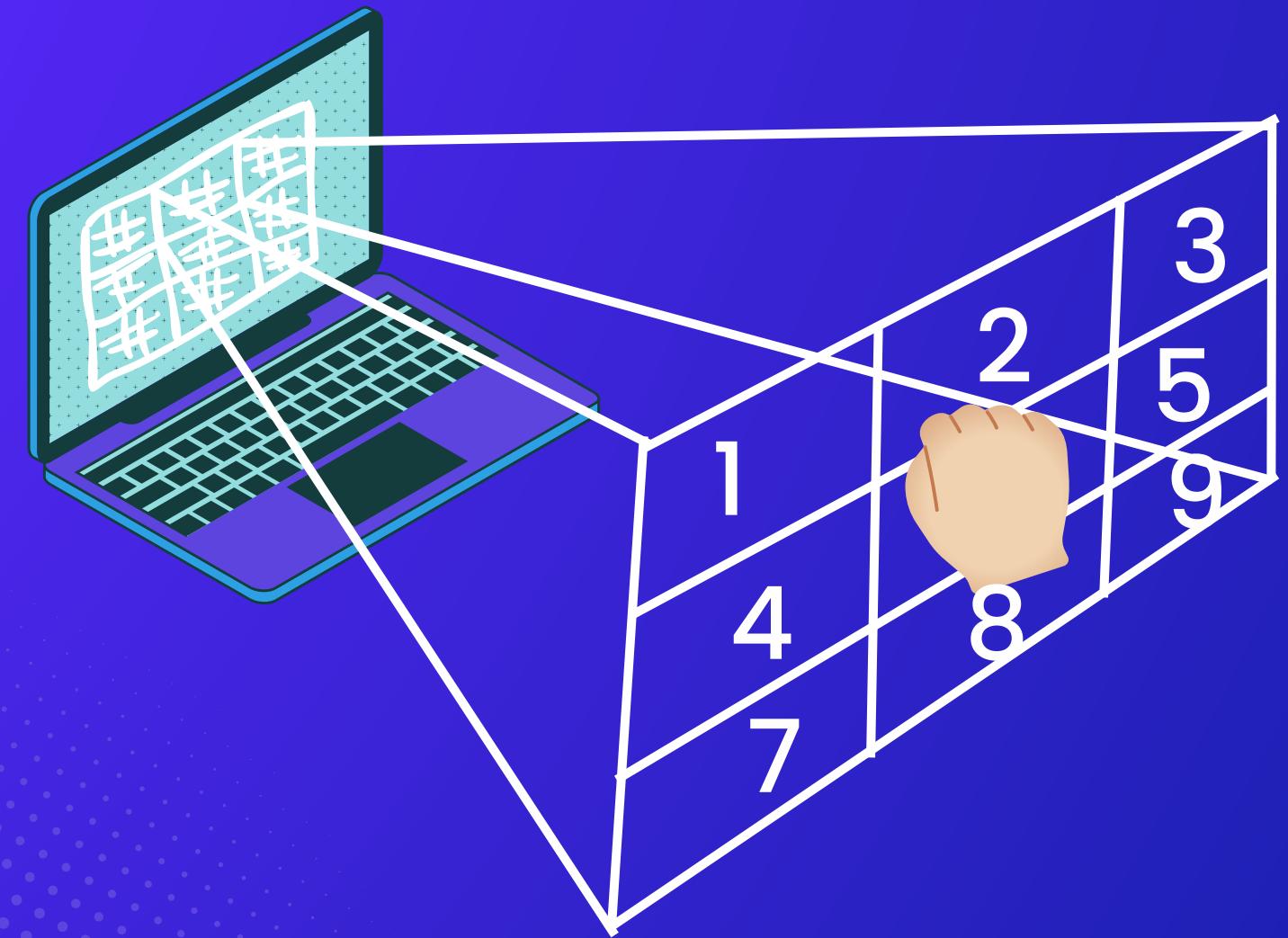
# MENU MODE

The most intuitive



# GAME MODE

The most precise



# GEMSTONE V2 ?

- With access to more resources, we could train and enhance our bot
- We could make the game more dynamic with some animations
- Develop our game on a more resourceful computer



**THANK YOU**

Any question ?



# OUR TEAM



**Théo Bonnet**  
Communication



**Mathieu Henry**  
Game interface



**François Gerbeau**  
Hand tracking



**Majda Kemmou**  
Game interface



**Lelio Gualino**  
AI

