

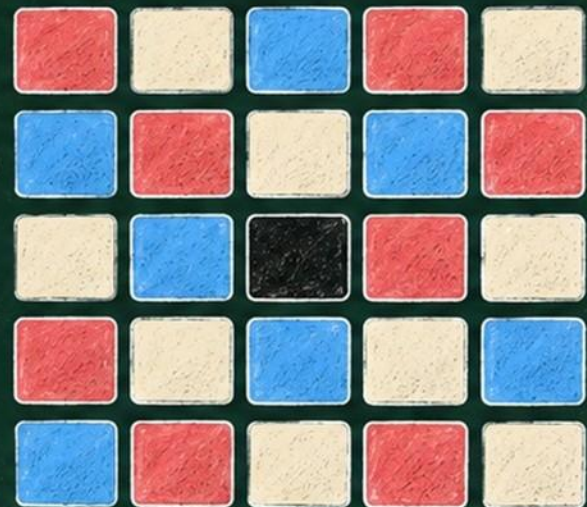
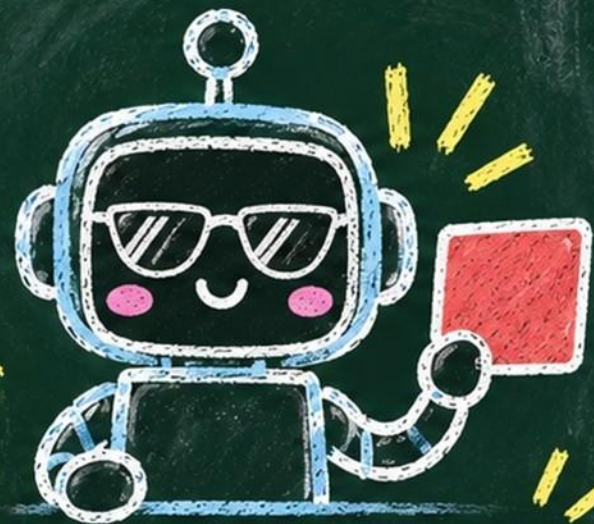


Operation Codenames

LLM Engineering Club Workshop

Teach a small AI to play Codenames

The University of Oklahoma



Meet the team



Arash Ahmadi

President

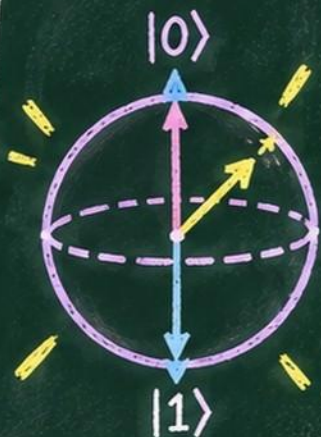
ECE PhD student at OU who trains, fine-tunes, and interprets large language models.



Sara Aminpour

Vice President

ECE PhD candidate at OU researching quantum machine learning.



➤ Come say hi after the meeting! ➤

Tonight's Mission



1 Play a round



2 Train your model



3 Create your bot

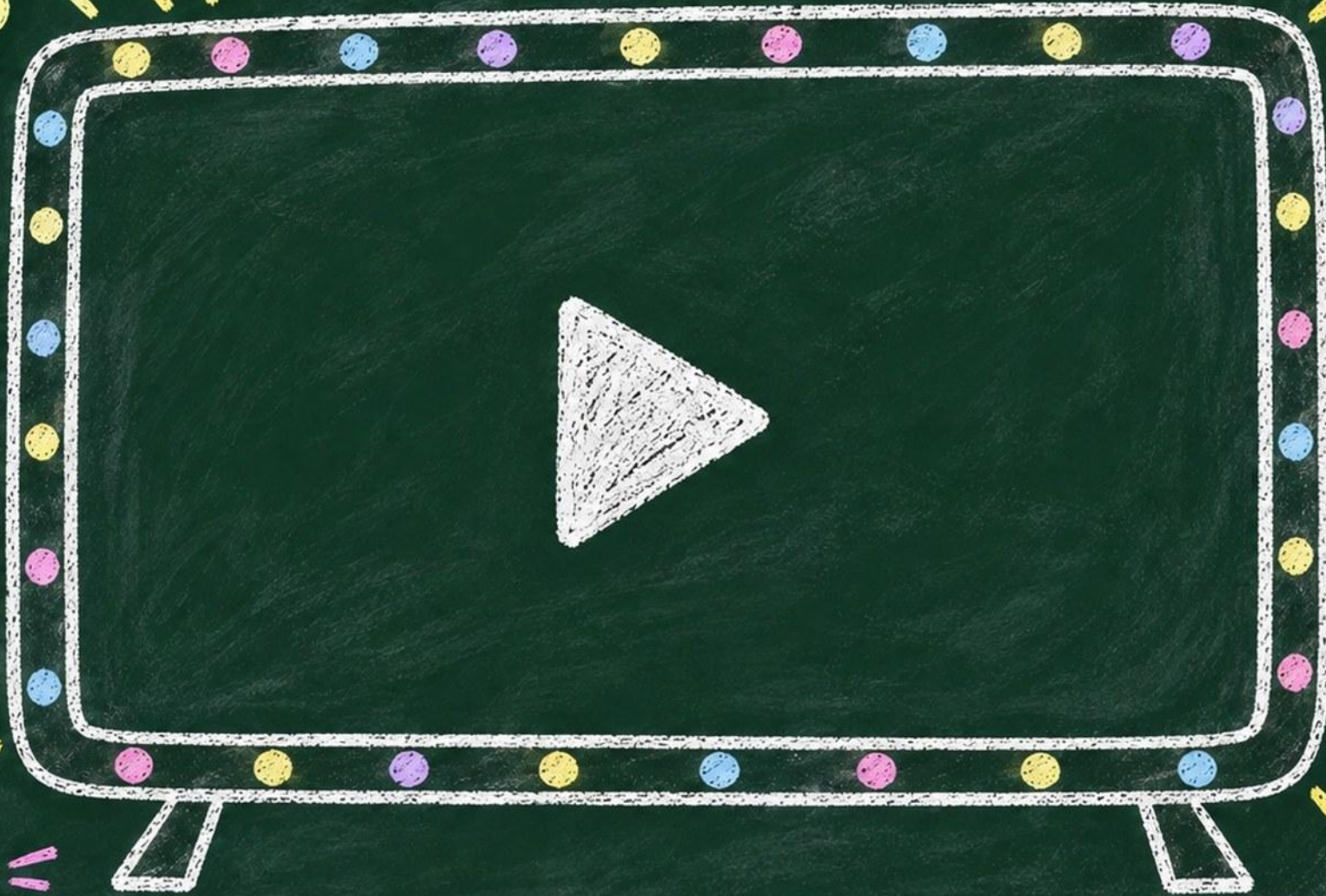


4 Battle

How do you play
Codenames?



Watch first, then we play!



Join in 10 seconds

1. Scan the QR code 

2. Make a username + password 

3. On your laptop, open:
inquirelab.ai/llm-club/codenames
and log in 



Scan me!  



Step 1: Play a round

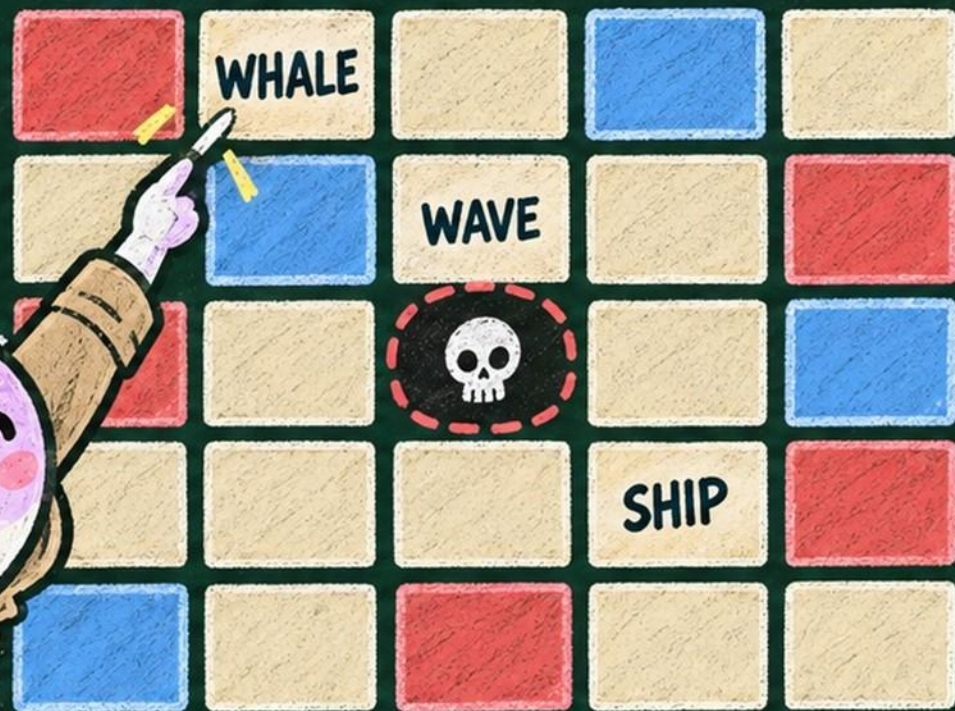
OCEAN · 2

 You are the red operative

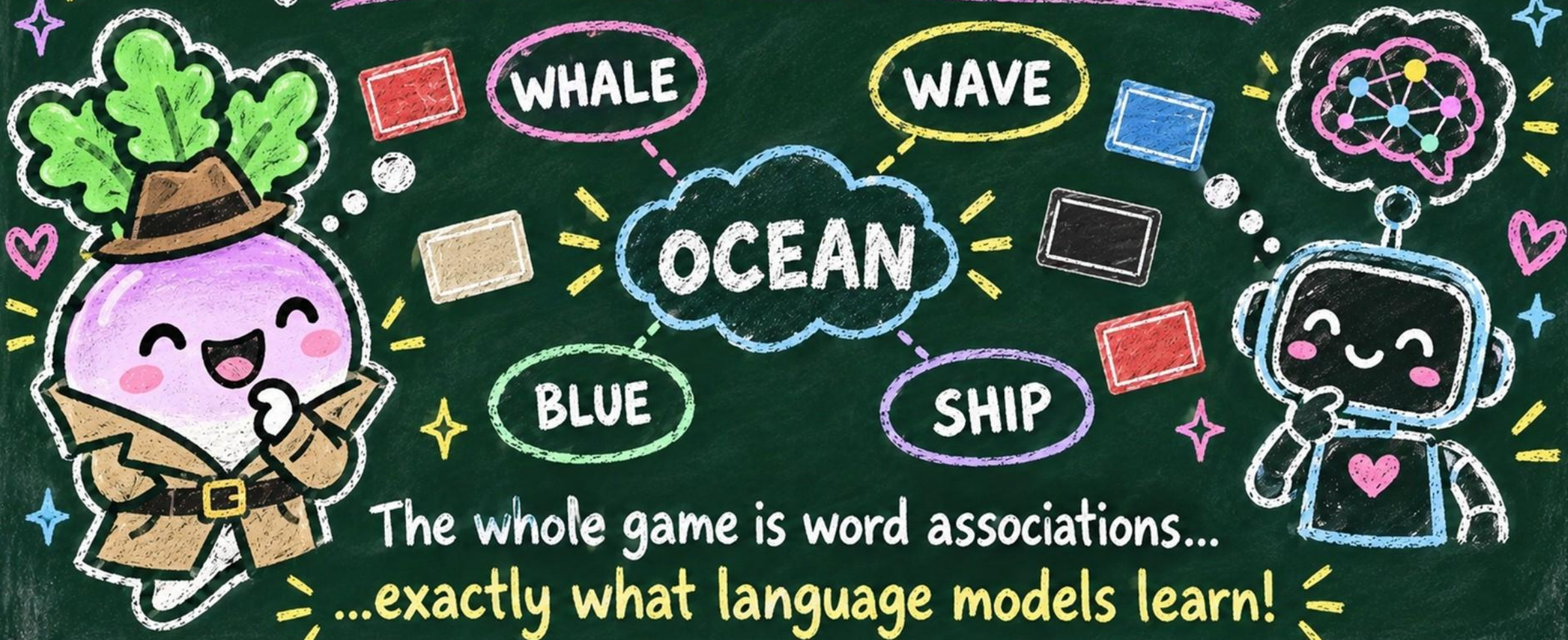
 The Oracle is your spymaster

 Clue = one word + a number

 Tap cards. Avoid the assassin!



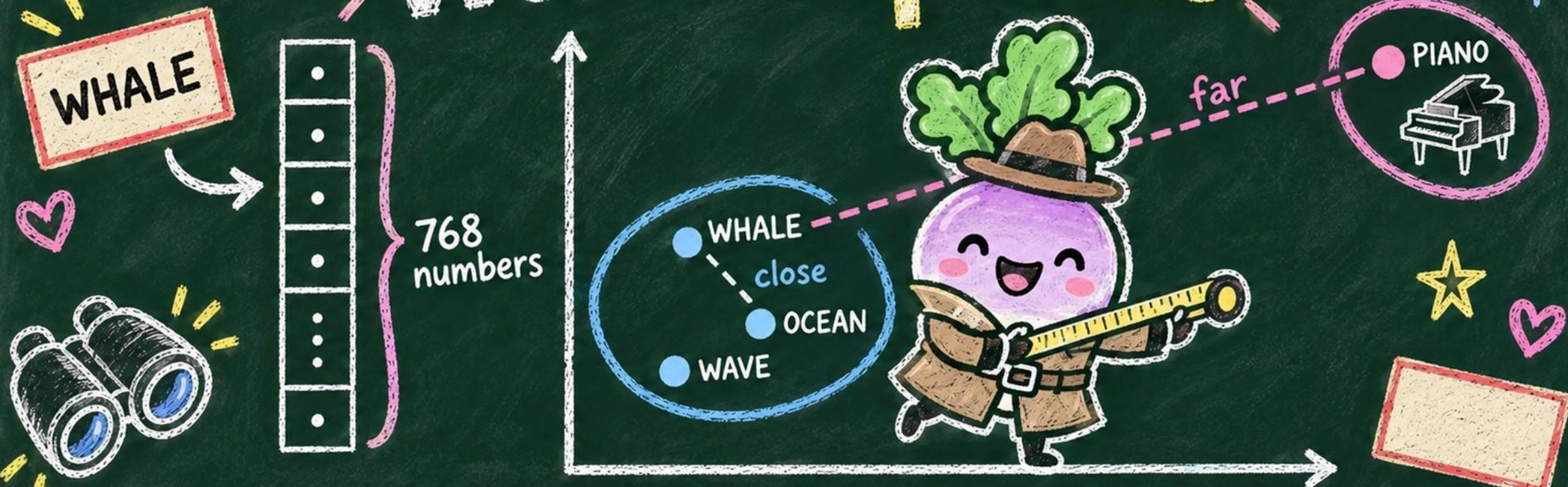
Why **Codenames** in an LLM club?



The whole game is word associations...

...**exactly what language models learn!**

Words as points



Every word becomes a list of 768 numbers

Related words sit close together

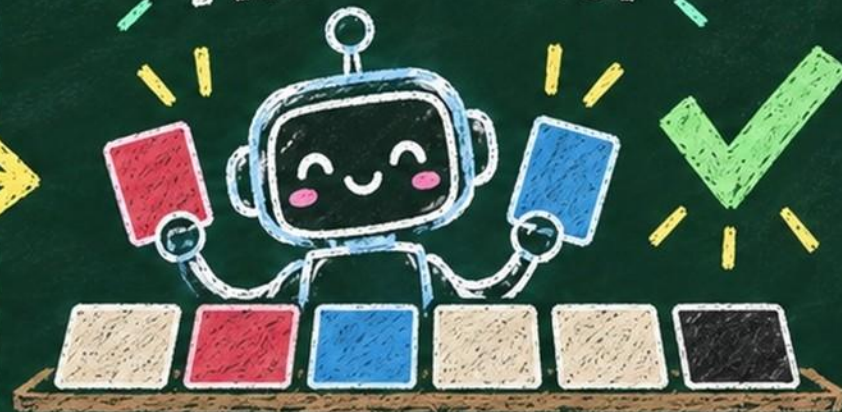
The Oracle + a verifier

The Oracle



Makes clues with
embedding math

The Verifier



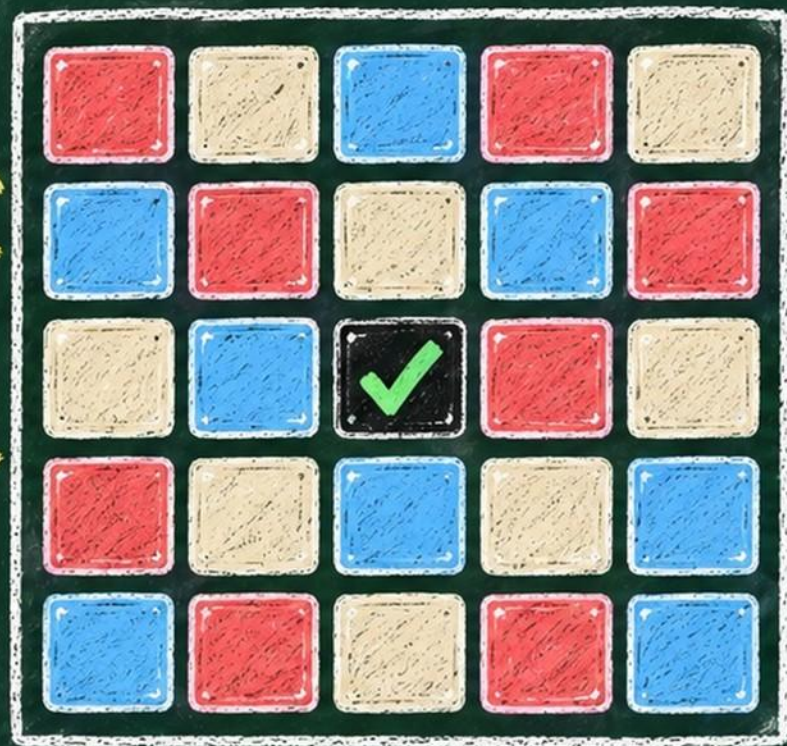
Keeps a board only if a test
player picks exactly the right words

A verifier beats a labeller

No human labels needed!



From boards to training data



Spymaster:
give a clue



Operative:
guess the cards



Know when
to PASS

Each verified board becomes chat examples

Fine-tuning Gemma 4 with QLoRA



Q = a 4-bit model (small + fast)

LoRA = a tiny adapter we train



About 10 minutes of training • Also runs in Google Colab



Your own lab GPU, right in the browser
RTX 5090 • 4090 • 3090 • 4080 SUPER



Watch the loss fall



Loss = how wrong
the model is

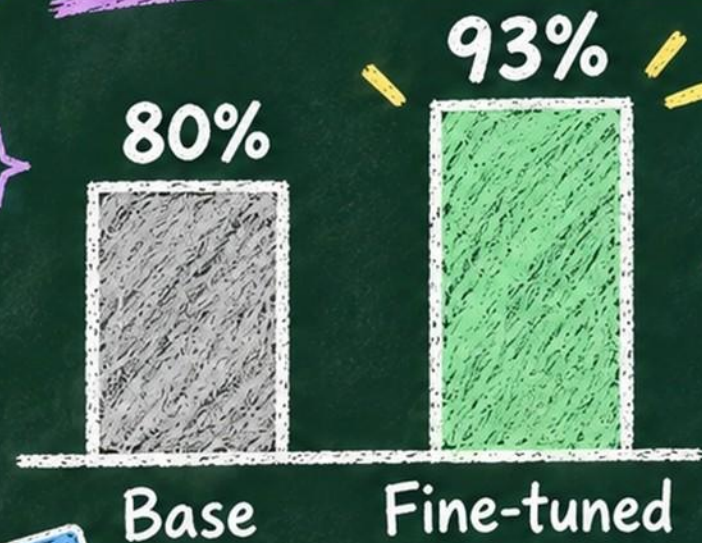
It should go down
step by step



Did it work?

Club fine-tune, tested on held-out boards

Own-card rate



Head to head

Fine-tuned	5
Base	1



80% → 93%, and it won 5-1!

Step 3: Create your bot



Give it a name



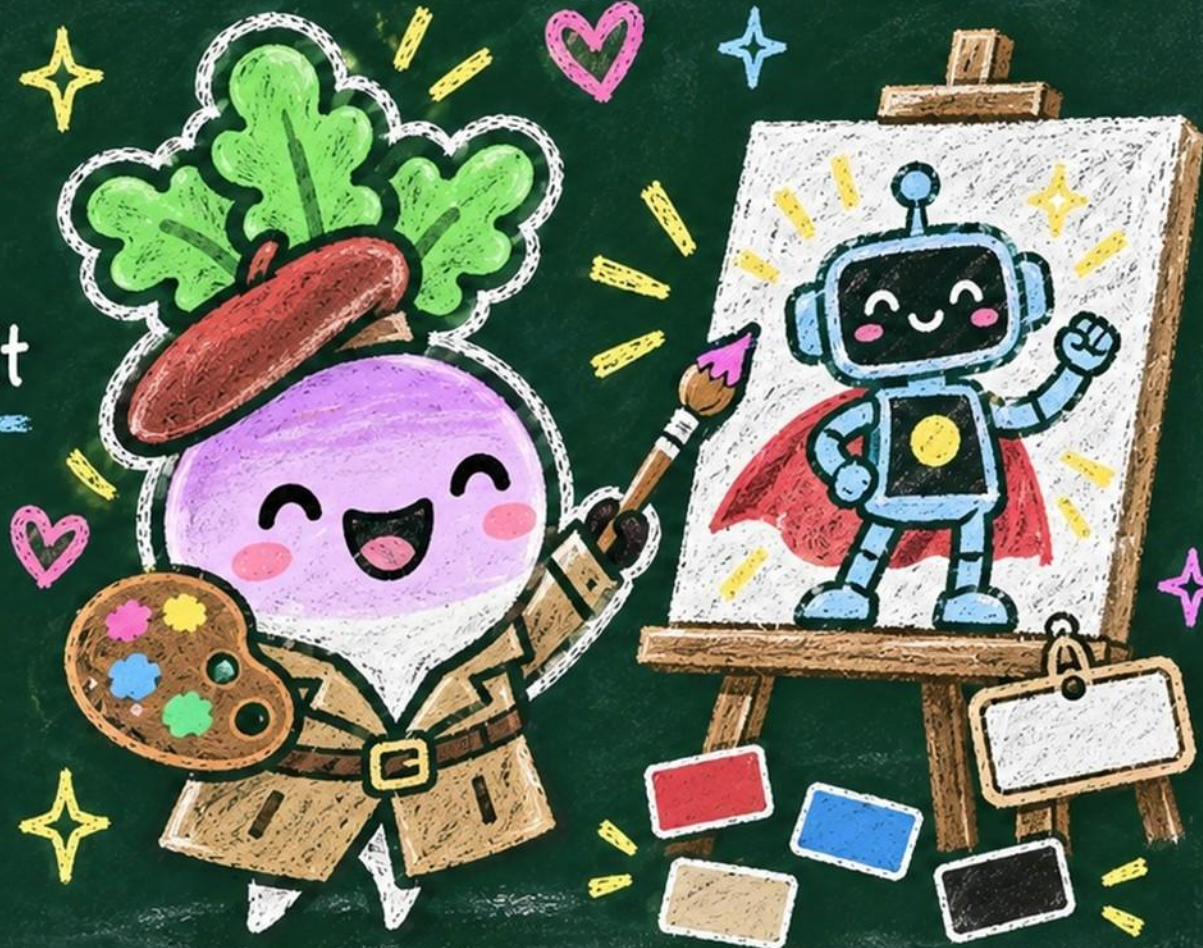
Describe it: type or speak it



It gets its own portrait



It plays with the model
YOU trained



Step 4: Battle!

Sit at a table in
the live lobby

Add bots: Oracle,
untrained Gemma 4,
Club Champion,
classmates' bots

Press Start!



Leaderboard









Good luck,
agents!

Thank you for coming!

LLM Engineering Club • The University of Oklahoma

Discord: discord.gg/QeKUHMvUNH

