

Trials of Trazyn:Pitch

Généralité

Trials of Trazyn est un système d'entraînement d'IA pour le jeu de stratégie Warhammer 40K avec interface web jouable. Le projet utilise l'apprentissage par renforcement (RL) pour entraîner des agents IA à jouer au tactical combat tour par tour.

Technologies Principales

Frontend Web

- TypeScript + React - Interface utilisateur moderne
- PIXI.js (v7.4.3) - Rendu graphique 2D accéléré WebGL
- Vite - Build système rapide
- Tailwind CSS - Framework CSS utilitaire

Backend IA & Entraînement

- Python 3.x - Logique d'entraînement IA
- Gymnasium - Environnement d'apprentissage par renforcement
- DQN (Deep Q-Network) - Algorithme d'apprentissage
- TensorBoard - Monitoring de l'entraînement

Système de Configuration

- JSON - Fichiers de configuration centralisés
- ConfigLoader - Gestionnaire de configuration unifié

Architecture

Système de Miroir Frontend-Backend : Les composants TypeScript du frontend sont parfaitement reflétés en Python pour l'IA, garantissant que l'entraînement et le gameplay utilisent exactement les mêmes règles de jeu.

The screenshot displays the Trials of Trazyn:Pitch game interface. On the left is a hexagonal battlefield map with various units and terrain. On the right, there are two tables showing unit status for Player 1 (Human) and Player 2 (Human). Below these tables is a Game Log section.

Player 1 - Human

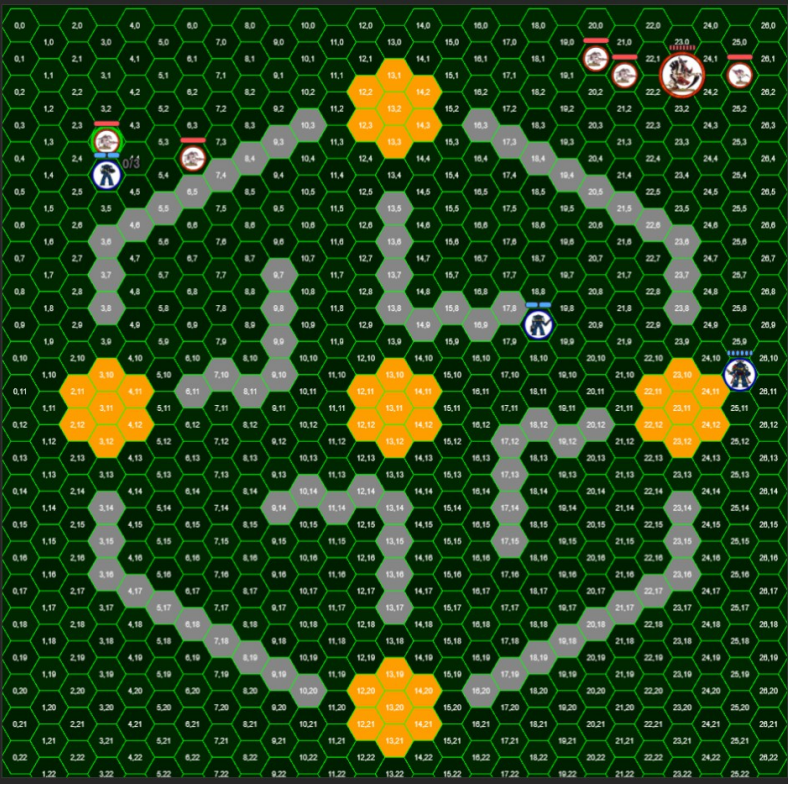
ID	Type	HP	M	T	SV	RNG	A	BS	S	AP	D	A	CC	S	AP	D
0	Intercessor	2/2	6	4	3+	24"	2	3+	4	-1	1	3	3+	4	-0	1
1	CaptainGravis	6/6	5	6	3+	12"	3	2+	4	-1	1	5	2+	8	-2	2
2	AssaultIntercessor	2/2	6	4	3+	18"	1	3+	4	-1	1	4	2+	4	-1	1

Player 2 - Human

ID	Type	HP	M	T	SV	RNG	A	BS	S	AP	D	A	CC	S	AP	D
3	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
4	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
5	Hormagaunt	1/1	10	3	5+	0"	0	0+	0	-0	0	3	4+	3	-1	1
7	Canifex	8/8	8	9	2+	24"	6	4+	7	-2	1	6	4+	9	-2	3
8	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
9	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1

Game Log

- 00:00:15 P1 Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 2: Failed!
- 00:00:15 P1 Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 3: Success! - Wound (3+) 3: Success! - Armor (5+) 5: Success! - 0 HP
- 00:00:15 P1 Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 6: Success! - Wound (3+) 6: Success! - Armor (5+) 5: Success! - 0 HP
- 00:00:15 P1 Start Player 1's COMBAT phase
- 00:00:15 P1 Unit P-1 CHARGE ROLL: 4 - No enemy unit(s) in range
- 00:00:17 P1 Unit P-1 CHARGED from (3, 5) to (3, 4)
- 00:00:17 P1 Unit P-1 CHARGE ROLL: 2 - Enemy unit(s) in range
- 00:00:17 P1 Start Player 1's CHARGE phase
- 00:00:17 P1 Unit 0 SHOT at unit 8 - Shot 1: Hit (3+) 4: Success! - Wound (3+) 1: Failed!
- 00:00:17 P1 Unit 0 SHOT at unit 8 - Shot 1: Hit (3+) 1: Failed!
- 00:00:17 P1 Unit 1 SHOT at unit 7 - Shot 1: Hit (2+) 3: Success! - Wound (5+) 1: Failed!
- 00:00:17 P1 Unit 1 SHOT at unit 5 - Shot 1: Hit (2+) 3: Success! - Wound (3+) 6: Success! - Armor (6+) 6: Success! - 0 HP



PvP

PvE

Replay

Turn 1

Turn 2

Turn 3

Turn 4

Turn 5

Move

Shoot

Charge

Combat

Player 1 - Human

ID	Type	HP	M	T	SV	RANGE WEAPON					MELEE WEAPON					
						RNG	A	BS	S	AP	D	A	CC	S	AP	D
0	Intercessor	2/2	6	4	3+	24"	2	3+	4	-1	1	3	3+	4	-0	1
1	CaptainGravis	6/6	5	6	3+	12"	3	2+	4	-1	1	5	2+	8	-2	2
2	AssaultIntercessor	2/2	6	4	3+	18"	1	3+	4	-1	1	4	2+	4	-1	1

Player 2 - Human

ID	Type	HP	M	T	SV	RANGE WEAPON					MELEE WEAPON					
						RNG	A	BS	S	AP	D	A	CC	S	AP	D
3	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
4	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
5	Hormagaunt	1/1	10	3	5+	0"	0	0+	0	-0	0	3	4+	3	-1	1
7	Carnifex	8/8	8	9	2+	24"	6	4+	7	-2	1	6	4+	9	-2	3
8	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
9	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1

Game Log

19 events

00:00:55

P1

Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 2: Failed!

00:00:55

P1

Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 3: Success! - Wound (3+) 3: Success! - Armor (5+) 5: Success! - 0 HP

00:00:54

P1

Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 6: Success! - Wound (3+) 6: Success! - Armor (5+) 5: Success! - 0 HP

00:00:50

P1

Start Player 1's COMBAT phase

00:00:50

P1

Unit P-1 CHARGE ROLL : 4 - No enemy unit(s) in range

00:00:47

P1

Unit P-1 CHARGED from (3, 5) to (3, 4)

00:00:42

P1

Unit P-1 CHARGE ROLL : 2 - Enemy unit(s) in range

00:00:40

P1

Start Player 1's CHARGE phase

00:00:40

P1

Unit 0 SHOT at unit 8 - Shot 1: Hit (3+) 4: Success! - Wound (3+) 1: Failed!

00:00:38

P1

Unit 0 SHOT at unit 8 - Shot 1: Hit (3+) 1: Failed!

00:00:32

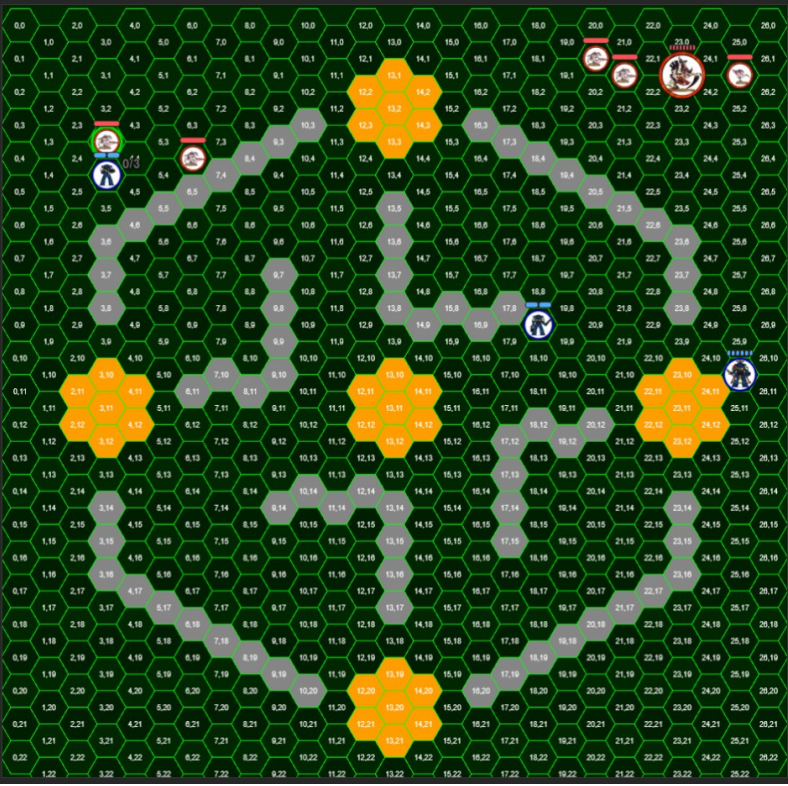
P1

Unit 1 SHOT at unit 7 - Shot 1: Hit (2+) 3: Success! - Wound (5+) 1: Failed!

00:00:30

P1

Unit 1 SHOT at unit 5 - Shot 1: Hit (2+) 3: Success! - Wound (3+) 6: Success! - Armor (6+) 6: Success! - 0 HP



PvP

PvE

Replay

Turn 1

Turn 2

Turn 3

Turn 4

Turn 5

Move

Shoot

Charge

Combat

Player 1 - Human

ID	Type	HP	M	T	SV	RANGE WEAPON					D	MELEE WEAPON				
						RNG	A	BS	S	AP		A	CC	S	AP	D
0	Intercessor	2/2	6	4	3+	24"	2	3+	4	-1	1	3	3+	4	-0	1
1	CaptainGravis	6/6	5	6	3+	12"	3	2+	4	-1	1	5	2+	8	-2	2
2	AssaultIntercessor	2/2	6	4	3+	18"	1	3+	4	-1	1	4	2+	4	-1	1

Player 2 - Human

ID	Type	HP	M	T	SV	RANGE WEAPON					D	MELEE WEAPON				
						RNG	A	BS	S	AP		A	CC	S	AP	D
3	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
4	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
5	Hormagaunt	1/1	10	3	5+	0"	0	0+	0	-0	0	3	4+	3	-1	1
7	Carnifex	8/8	8	9	2+	24"	6	4+	7	-2	1	6	4+	9	-2	3
8	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1
9	Termagant	1/1	6	3	5+	18"	1	4+	5	-0	1	1	4+	3	-0	1

Game Log

19 events

00:00:55

P1

Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 2: Failed!

00:00:55

P1

Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 3: Success! - Wound (3+) 3: Success! - Armor (5+) 5: Success! - 0 HP

00:00:54

P1

Unit 0 FOUGHT unit 8 - Shot 1: Hit (3+) 6: Success! - Wound (3+) 6: Success! - Armor (5+) 5: Success! - 0 HP

00:00:50

P1

Start Player 1's COMBAT phase

00:00:50

P1

Unit P-1 CHARGE ROLL : 4 : No enemy unit(s) in range

00:00:47

P1

Unit P-1 CHARGED from (3, 5) to (3, 4)

00:00:42

P1

Unit P-1 CHARGE ROLL : 2 : Enemy unit(s) in range

00:00:40

P1

Start Player 1's CHARGE phase

00:00:40

P1

Unit 0 SHOT at unit 8 - Shot 1: Hit (3+) 4: Success! - Wound (3+) 1: Failed!

00:00:38

P1

Unit 0 SHOT at unit 8 - Shot 1: Hit (3+) 1: Failed!

00:00:32

P1

Unit 1 SHOT at unit 7 - Shot 1: Hit (2+) 3: Success! - Wound (5+) 1: Failed!

00:00:30

P1

Unit 1 SHOT at unit 5 - Shot 1: Hit (2+) 3: Success! - Wound (3+) 6: Success! - Armor (6+) 6: Success! - 0 HP