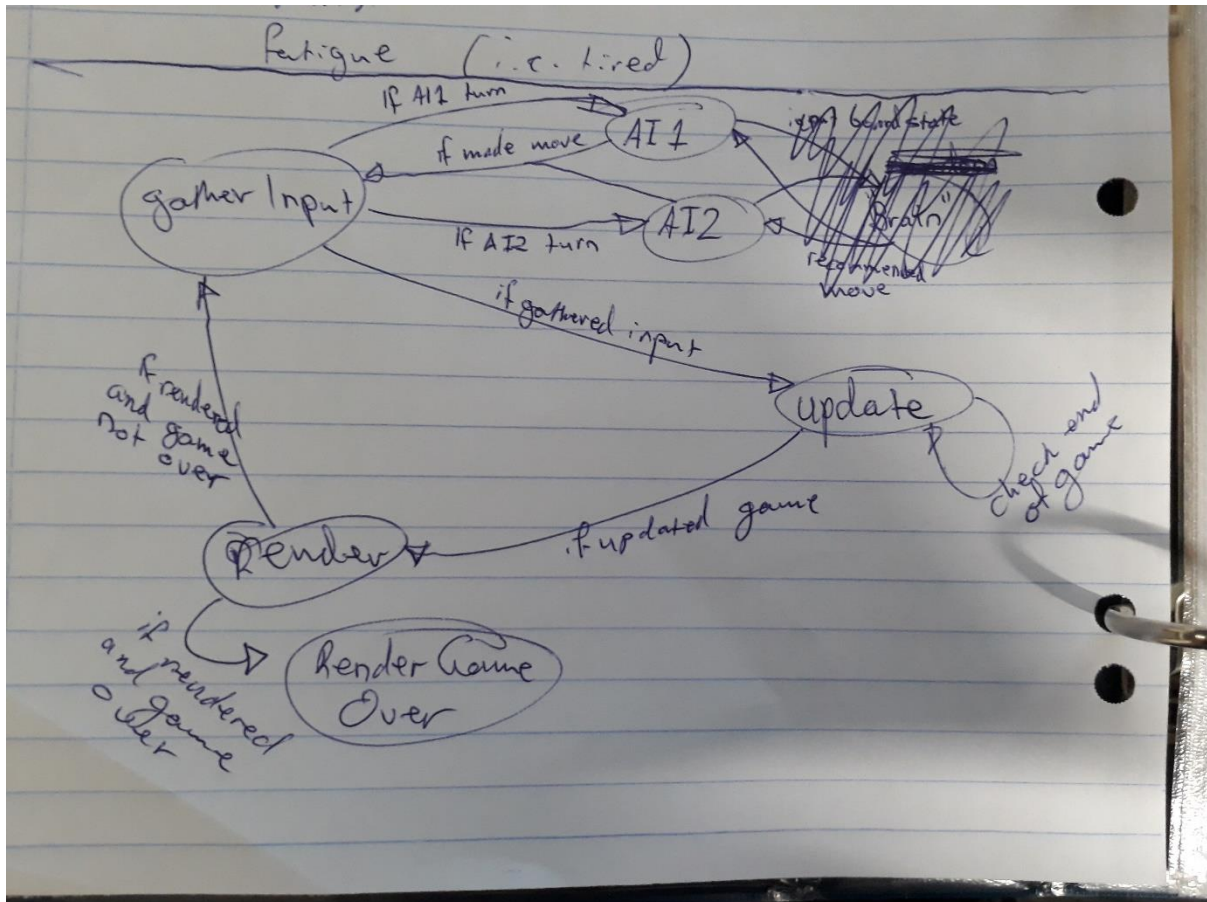


Tic Tac Toe Task Design and Pseudocode

Game Loop Diagram



AI1 Pseudocode

MakeMove():

- If no. of playable spaces ≤ 5 :
 - CheckWinningMove()
 - If winning move found:
 - Return winning move

- Return CheckNonWinningMove()

CheckWinningMove():

Result = null

For each playable space:

- If space not already in list of winnable spaces:

- For each possible 3-in-a-row:

- If CheckIfSetIsWinnable():

- Add space to list of winnable spaces

- If list of winnable spaces is not empty:

- Result = random winnable space

- Return result

CheckIfSetIsWinnable():

For each space in a possible 3-in-a-row:

- If the space is not empty or an "X":

- Return False

- Return True

CheckNonWinningMove():

If first turn:

- Return centre space

Else:

- Return random playable space

AI2 Pseudocode

MakeMove():

- If no. of playable spaces < 7:
 - CheckAttackableSpaces()
 - If attackable space found:
 - Return attackable space

- Return CheckOtherSpaces()

CheckAttackableSpaces():

- Unobstructed = true
- NextToO = false

- For each playable space:

- For each possible 3-in-a-row:

- If the playable space is in that 3-in-a-row:

- For each space in that 3-in-a-row:

- If that space is an "X":

- Unobstructed = False

- else if it's an "O":

- NextToO = true

- If space is Unobstructed and NextToO:

- If space not in list of attack spaces:

- Add space to list of attack spaces

- Else if space in list of attack spaces:

- Add space to list of multi-attack spaces

- Reset Unobstructed and NextToO

- If list of multi-attack spaces not empty and Random (no. between 0 and 1) > 0.5:

- Return random multi-attack space

- Else if list of attack spaces not empty:

- Return random attack space

- Else:

- Return null

CheckOtherSpaces()

- If first turn:

- Return random corner space

- Else

- Return random playable space