I started working with Unity as a requirement following my masters Degree on Graphics Multimedia and VR.

Since then I create a couple of projects, most of them just to get familiar with the Unity Engine and to pass my classes.

Most of the project are made while following online tutorials and and not entierly designed by me.

Those are the projects that I worked on in the last year:ia

1. Matching Card Game
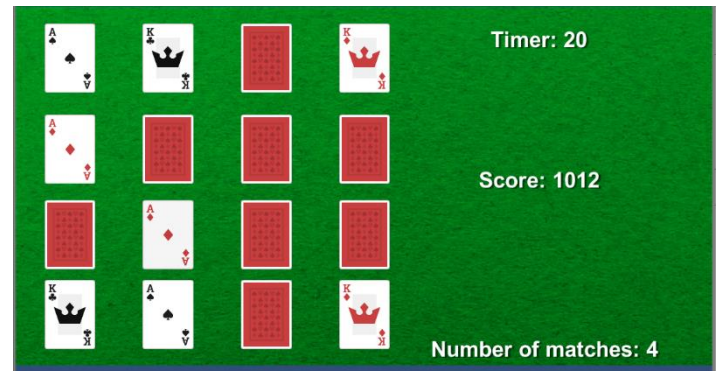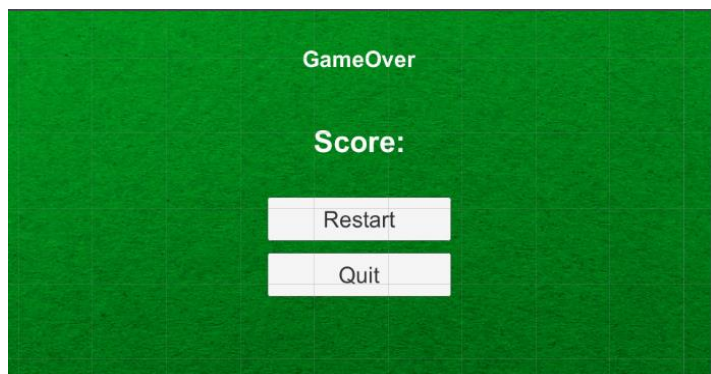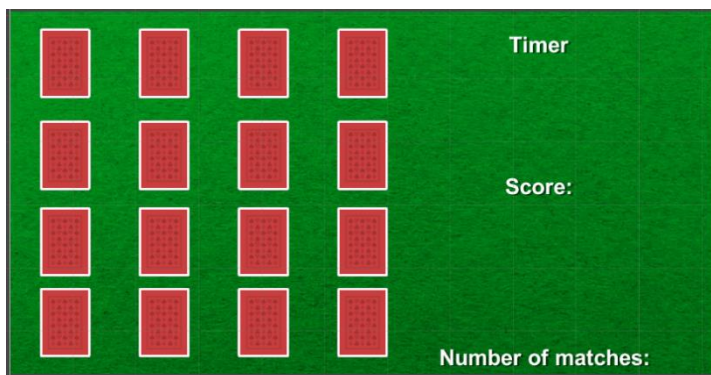
This is my first Unity game.
This is a matching card game on a 4x4 grid.
Assets are from unity asset store/internet.
Game Features:
- Bad matches take ~1s to flip back.
- Score is based on time remaining.

Game Problems:
- Sometimes if you fast click the cards they will not flip on their front face, so you must click them again.
- The random function is not well implemented / has a bad distribution as a result, cards are sometimes arranged in a predictable manner.

Video Link: Matching Card Game

2. 2D Platformer

On this game I learned a couple of things about sprite animations, key-frame animations, 2D camera movement and scripts in general.

This is my second unity Game.

This is a 2D platformer where the Player is a wizard battling some marching lizards in his way to the wizard king.

Game Features:
- Rolling landscape
- Sprite Animations
    - Wizard – Idle, Walking, Jumping, Death
    - Lizard – Walking, Death(Explosion)

- Keyframe Animation
    - Wizard - Attacking
- Projectile Impact Sprite
- Random lizard spawning and marching

Game Problems:
- Lizards can get stuck.
- Sometimes Lizards are not hurting the player.
- Sprites remain for ~1s after projectile hit.
- Final boss Wizard is unbeatable.

Video Link: 2D Wizard Platformer

3. 2D Tilemap Platformer

On this game I learned a couple of things about tilemaps.
This game is a 2D platformer focusing on tilemaps.
This game uses PennyPixel assets that are unity recommended start point when learning about tilemaps.

Game Features:
- RuleTilemap made for stone/jungle tiles.
- Auto generated terrain using various procedural algorithms:
  - Cellular Automata
  - Directional Tunnel
  - Perlin Noise
  - Random Walk - Current one implemented
- Gem Spawner - in a random X-axis range

Game Problems:
- Auto generated algorithm has few seeds -> generated terrains pattern repeats itself. (this only affects runtime, an increase number of seeds can be set before running).
- Gems that have collision cannot be picked up.
- Gems that don't have collision fall through map.

Video Link: 2D Tilemap Platformer

4. First-Person Shooter "Lost Island"

This was the biggest project I had. Using various assets that I found on the internet/unity asset store, I created a huge map where the player can roam and kill enemies 'Serious Sam' style.

- DMG dealt to player is not well implemented
- Water looks strange

Features:

- -2 types of enemies : - Skeleton/Bandit
- -If HP reaches 0 ,player is respawned at the begining.
- -Enemies come towards you if you enter their range .
- -Skeleton has 150HP and 35 Dmg / Bandit has 100HP and 15DMG
- -HP bar for enemies appears if you focus them
- -Minimap(Only for player for now)
- -KillCounter
- -HP counter
- -Some animations for Enemies
- -Sounds : Shooting /When player enters skeleton range / When player enters bandit range / Ambiental.
- -Only 1 weapon with 30 buletts and unlimited magazine.
- -Weapon deals 10 dmg/shoot;
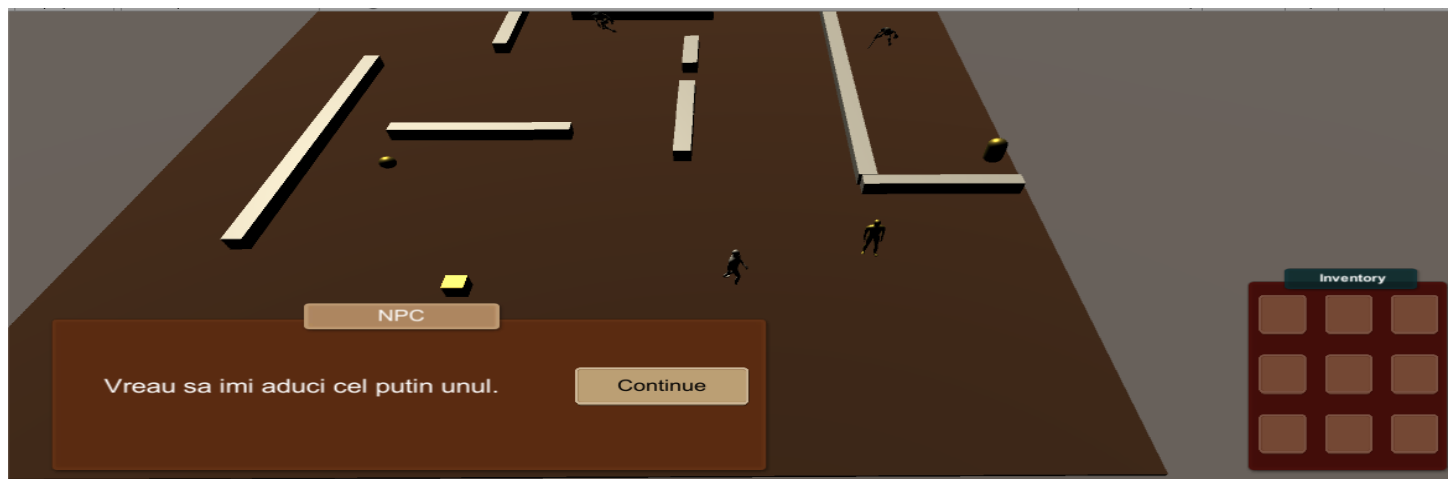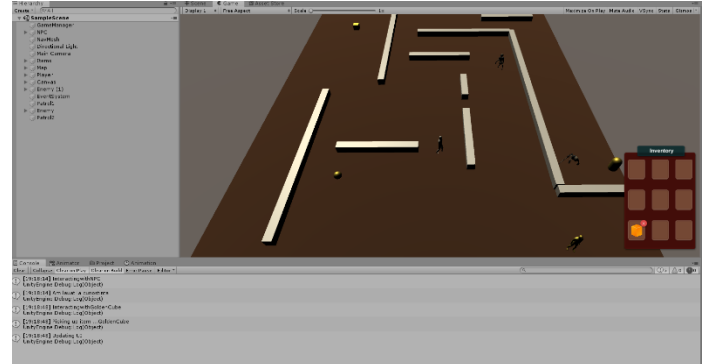- -Enemies spawn tombstones when they die.

Controlls:

- WASD - Movement
- Space - Jump
- Left Shift - Sprint
- LeftMouse - Shoot
- R – Reload

Video Link: Lost Island FPS

5. RPG Elements Project

In this project I only simulated some RPG mechanics that can be usen on other games.

Game Features:

- Navmesh navigator.
- Patrolling enemies.
- Items to pick-up.
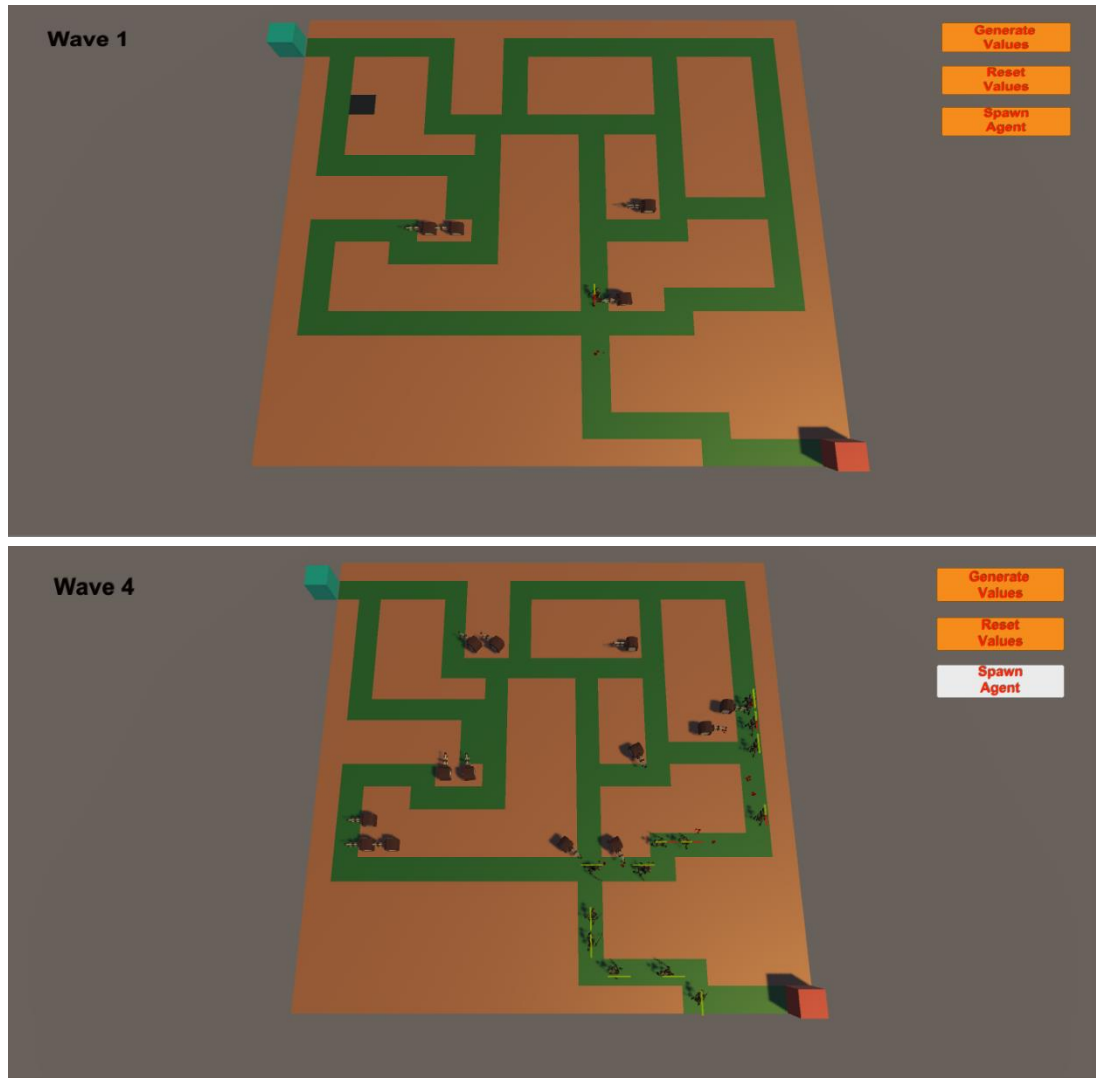- Inventory.
- Items can be dropped.
- Quest Npc.

Game Problems:

- Navmesh/Movement is broken.
- Dropping an item sends player flying in one direction.

Video Link: RPG Elements

6. Reinforcement Learning / Value Iteration - Tower Defense

This is my project for my class regarding AI in Video Games.

Each tile from the platform has a value assigned of which the largest is at the blue cube. Each spawned enemy follows the path to the highest reward obtainable until the Blue Cube (Final destination/Highest Reward). The Towers can diminish the reward generated on the grid tiles around them and forces enemies to change marching direction.

We can say the enemies are aware of where the towers were build and try to avoid them in order to reach the final destination.

Video Link: [Reinforcement Learning / Value Iteration - Tower Defense](#)

7. AR Battlecards

This is the current project that I'm working on for my class on Virtual Reality Systems.

This is an Augumented Reality game developed in Unity that can be deployed on Android Phones. It uses Vuforia markers printed on real life cards in order to summon little monsters on your phone screen and make them battle eachother. (Something like Pokemon Go).

I am currently researching ways to implement this project.