Game Proposals

Snake Satellite Proposal

- **Brief Description:**
    - Similar to 1997 game, Snake.
    - User controls satellite
    - Satellite ‘collects’ disasters such as illegal mining and fires
    - When a disaster is collected, the satellite gets an additional star in its stardust trail
    - The user has to avoid comets. If they hit them or their trail, it’s game over
    - Game side scrolls along

- **Neural Network Involvement:**

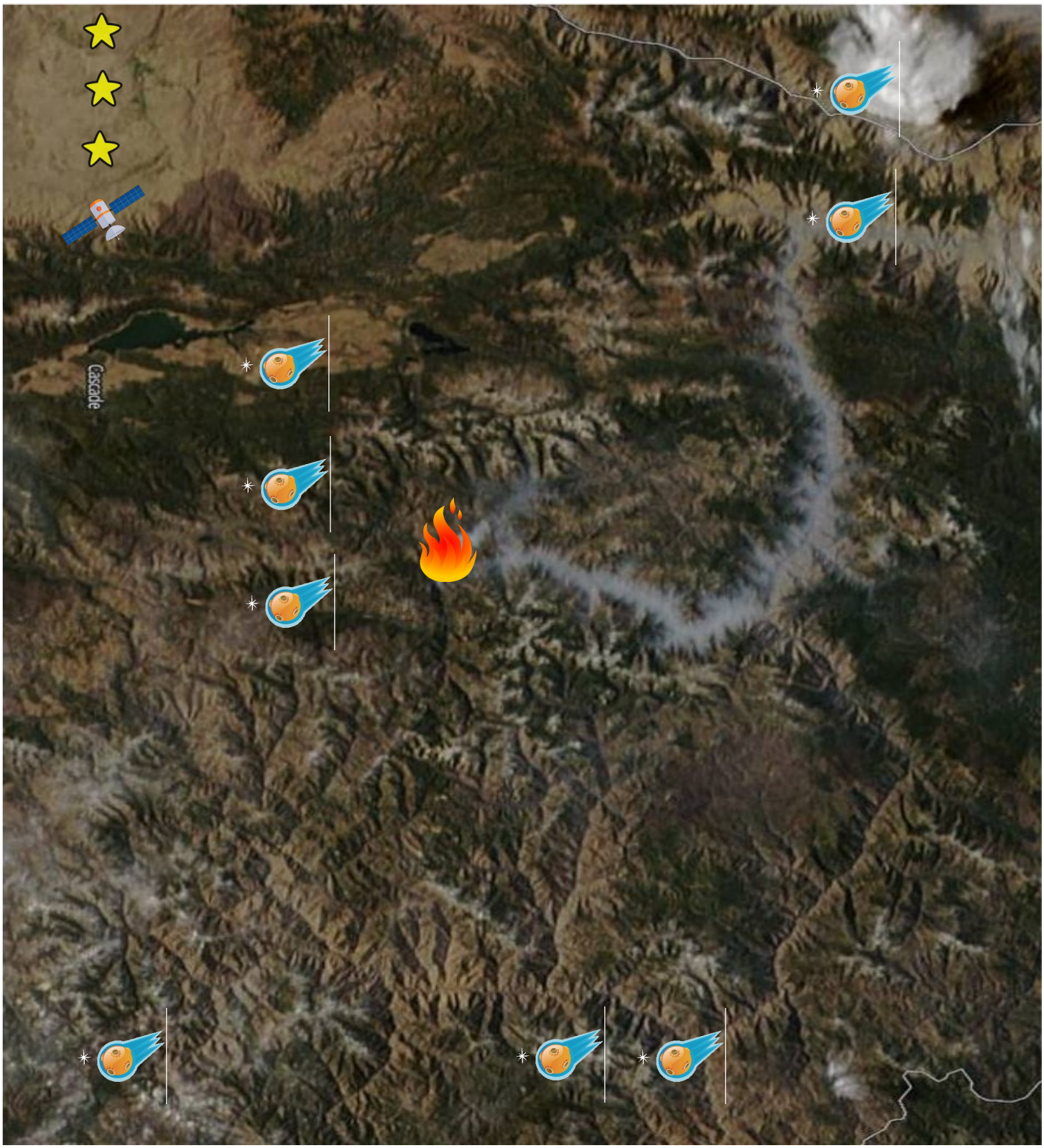
- Neural Network helps user:
    - Use real data satellite images
    - Neural network identifies emergency
    - Creates a cartoon image which the user collects

- Neural Network competes against the user
    - Neural Network ids emergencies
    - Pre-written script move Neural Network towards emergency, avoid comets etc

- **Difficulty level:**
    - Different speeds can be used for each difficulty
    - More comets with each difficulty
    - Neural Network competes against the user
        - Delay in network identifying object(*longer delay for easier difficulty*
        - Random mode every set interval(*large intervals for harder difficulty)*

- **Education value:**
    - Neural Network helps user:
        - Instructions at the start will explain Neural Network will identify emergencies
        - The user will see cartoon object appear, perhaps with text saying Neural Network has identified another emergency
        - Stat at the end showing how many emergencies the neural network identified for you
    - Neural Network competes against the user
        - Ghost overlay will show the neural network moving towards objects
        - Score at the end shows what neural network got

Game Proposals



Game Proposals
image sources:

- *Comet (https://pngtree.com/freepng/vector-flame-comet_2080782.html)*
- *Satellite(https://pngtree.com/freepng/cartoon-satellite_154692.html)*
- *Trail(http://clipart-library.com/images/6irpKnBiK.png)*
- *Background(https://www.nasa.gov/sites/default/files/thumbnails/image/image-download_3.jpg)*
- *Fire (http://images.clipartpanda.com/fire-clip-art-red_yellow_fire_logo.png)#*

Game Proposals

Pac-Man Proposal

Brief Description:

- Based on Pac-Man
- User controls satellite
- Satellite ‘collects’ items, that are identifiable by the neural network.
- When an item is collected user score increases, until all items are collected, and next level commences.
- The user must avoid enemy spaceships(ghosts) and collect all items to proceed to the next level.

Neural Network Involvement:

Neural Network competes against the user

- Neural Network identifies items and can rank items(from appearance) based on score player will receive for that item, the computer can also collect items and detract from the user score, the neural network will prioritize what items to collect.
- Pre-written scripts allow the neural network to chase down the user based on his location also.
- Neural Network must prioritize resources between lowering the user's points and catching the user to lower lives.

Difficulty level:

The difficulty will increase with each level, the computer will have access to more spaceships to send after the user or to items.

Education value:

Game shows a neural network identifying items as well as distinguishing the value of items(score gained)

Game Proposals

example of Pacman overlaying maps (similar to satellite imagery), items would have to be larger to be identifiable. (image from GoogleMaps).

Game Proposals

Cloud – Jump Proposal

Brief Description:

- Loosely Based on Mine-Sweeper.
- The user can jump mine between clouds.
- The user must keep mine hidden in clouds.
- If the satellite finds the mine game is over.
- The game is side-scrolling.
- The user jumps mine between clouds.
- The user could control multiple mines? And keep them all hidden?

Neural Network Involvement:

Neural Network competes against user:

- Tries to predict the cloud in which the mine is hiding. Cloud appearance changes, more drastically the longer the mine is hidden there this is noticeable to the neural network. The user can send decoys which change clouds as if the mine is hidden there but not as drastically.
- The user must keep moving the mine as the game is side-scrolling to keep up.
- The neural network can send the satellite to it's predicted cloud to uncover the mine and end the game.

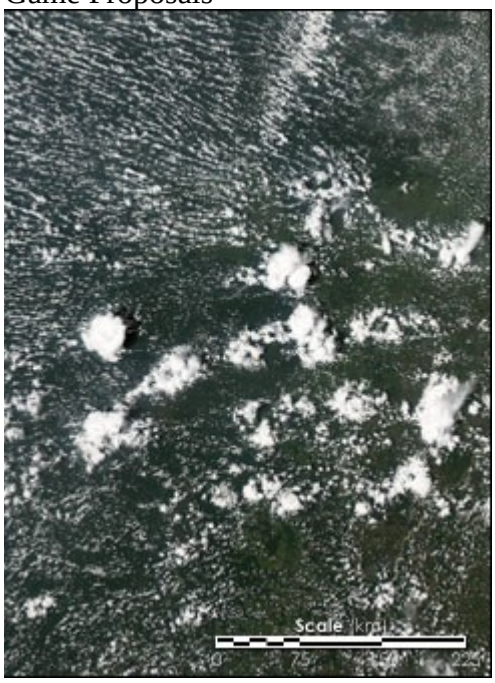
Difficulty level:

- Neural network against the user.
- Scroll speed can increase with time.
- Fewer clouds to hide in.

Education value:

- Instructions at the start will explain Neural Network will identify clouds to predict where the mine is.
- The neural network will be against the user, as clouds change and the computer gets closer to the catching the user, this gives a visualization of the neural network detecting changes.

Game Proposals



Example of satellite image with multiple clouds for mine to hide in.

Game Proposals

Flappy-Bird Style Game

Brief Description:

- Based on the app Flappy Bird
- The user files a plane while dodging obstacles in the sky
- The Neural Network acts as aviation control, detecting objects and warning the user.

Neural Network Involvement:

- The Neural network can identify objects that will pose a threat to the user
- There will be set outcomes depending on where the user is and when the network detects an object
- There will also be a setting where the network can fly the plane demonstrating how it works

Difficulty level:

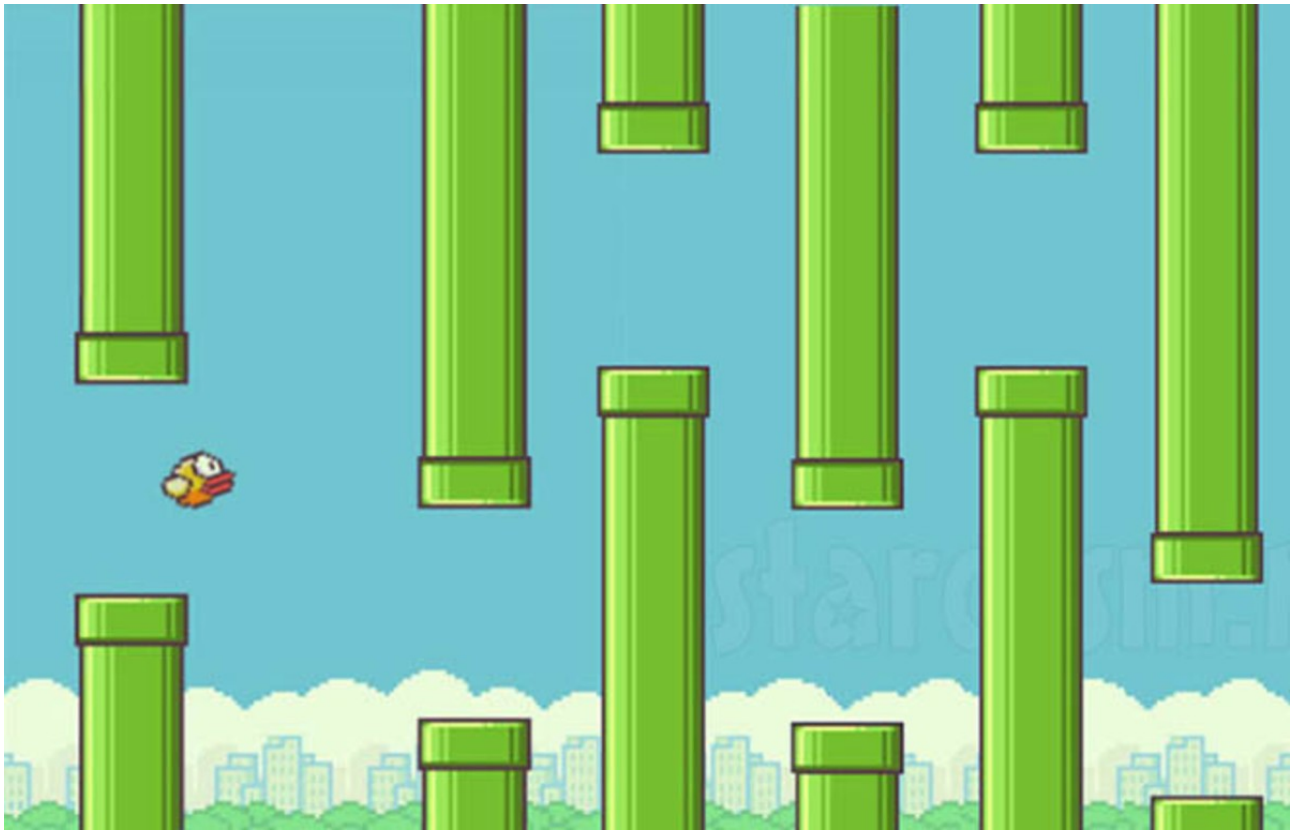
- The neural network will be set to various levels of ability.
- Within the easy setting
  - The network will detect objects well in advance warning the user and telling him/her to move in a certain direction
- Within the medium setting
  - The network will detect objects within a suitable time to get out the way of the object
- Within the hard setting
  - the network will detect objects in the last seconds before the user comes into contact with the object (the outcome of the game will be more down to the user).

Education value:

- This game will have an emphasis on the fact that a neural network gets better as it "learns".
- The game will show how with a larger dataset the network will be better (this is linked to the difficulty settings)

Game Proposals

Wireframe



Note
The bird in this picture will be a plane and the neural network will see objects (not just pipes) and guide the user through the map.

Game Proposals

Satellite wars Proposal

- **Brief Description:**
    - User controls satellite
    - Neural Network also controls satellite
    - Satellites ‘collects’ disasters such as illegal mining and fires
    - When a disaster is collected, scoreboard of Neural Network vs Player updated
    - The user has to avoid comets. If they hit them or the other satellite, it’s game over
    - Game side scrolls along
    - Satelitte can shoot each other to temporalily disabled them
    - Can also do two player

- **Neural Network Involvement:**

- Two player
    - Neural Network helps user:
        - Use real data satellite images
        - Neural network identifies emergency
        - Creates a cartoon image which the user collects

- Single player:
    - Neural Network competes against the user
        - Neural Network ids emergencies
        - Pre-written script move Neural Network towards emergency, avoid comets etc

- **Difficulty level:**
    - Different speeds can be used for each difficulty
    - More comets with each difficulty
    - Neural Network competes against the user
        - Delay in network identifying object(*longer delay for easier difficulty*
        - Random mode every set interval(*large intervals for harder difficulty)*
    - Frequency interval of satelittle shooting laser(*larger interval for easier mode*)

- **Education value:**
    - Neural Network helps user:
        - Instructions at the start will explain Neural Network will identify emergencies
        - The user will see cartoon object appear, perhaps with text saying Neural Network has identified another emergency
        - Stat at the end showing Neural Network competes against the user
    - Neural Network competes against user:
        - User will see the neural network in real-time try to get to emergency
        - Direct competition, (*on hard mode, neural network should win probablyall the time*)

Game Proposals