AR RESEARCH

Objective

- Learn new AR solution;
- Build an working example;
    - Simulate your facial expressions and lip movement;

Research Step by Step

1. Lookup all three examples
    a. AR Foundation
    b. Tensorflow
    c. Mediapipe
2. Unity Agents
    a. Barracuda
3. Tutorials
    a. Google
    b. Youtube
4. Examples Search
5. Example Refactoring

Skills Learned

- **Load/Run pre-trained neural networks models in the ONNX format using Unity Barracuda.**

Conclusion

AR Foundation

Most features already know, no further study is required.

- Simple interface;
- Exclusive for Mobile;
    - ARCore (Android)
    - ARKit (iOS);
- Used before in my Robot Controller project: https://www.youtube.com/watch?v=GN8qGs-XbK0

TensorFlow & Mediapipe

- Based on machine learning models
- Basic Models can be read by Unity using ML-Agents and Barracuda;
    - Requires Model format ONNX;
- Can also work with TensorFlowSharp;

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Time spent in Research and Development: 5 hours
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Sources

https://google.github.io/mediapipe/solutions/face_detection.html

https://blog.goodaudience.com/tensorflow-unity-how-to-set-up-a-custom-tensorflow-graph-in-unity-d65cc1bd1ab1

https://github.com/matiasvallejosdev/unity-tensorflow-face-recognition

https://github.com/Unity-Technologies/barracuda-release

https://github.com/keijiro/BlazeFaceBarracuda

https://github.com/keijiro/FaceLandmarkBarracuda