



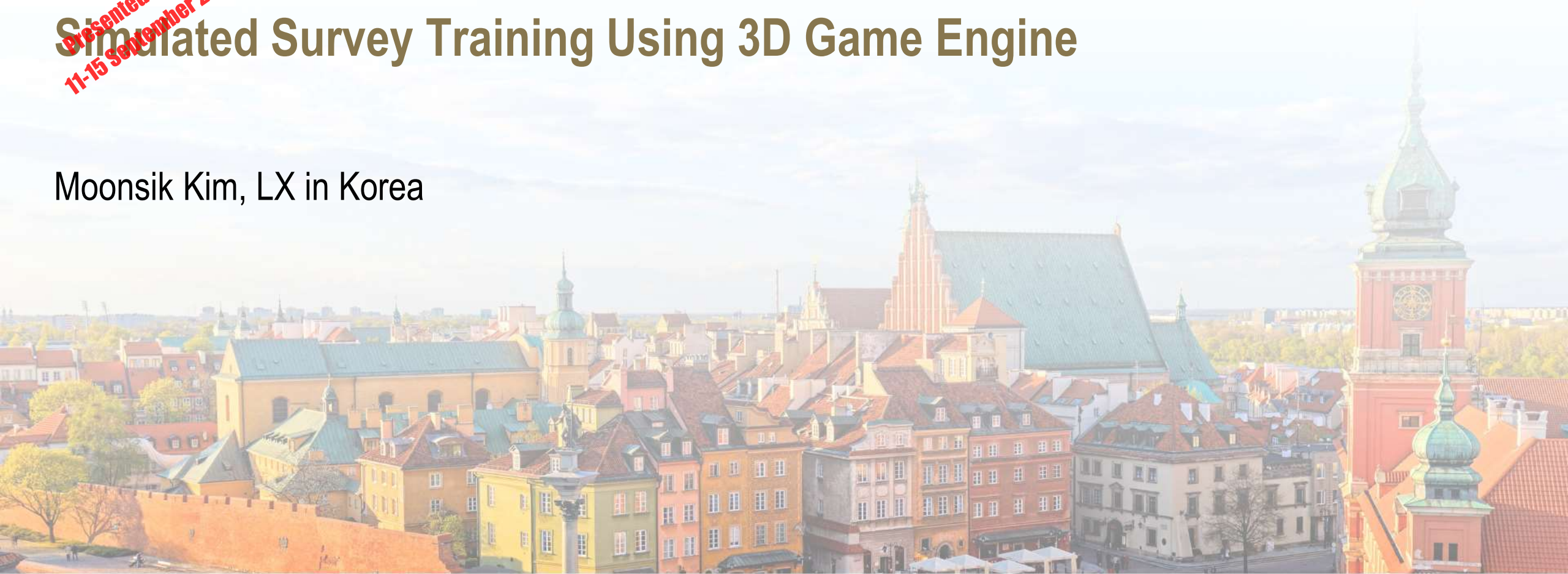
XXVII FIG CONGRESS

11-15 SEPTEMBER 2022
Warsaw, Poland

Volunteering
for the future –
Geospatial excellence
for a better living

Simulated Survey Training Using 3D Game Engine

Moonsik Kim, LX in Korea



ORGANISED BY



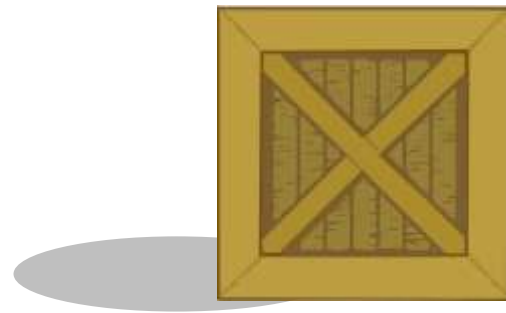
PLATINUM SPONSORS



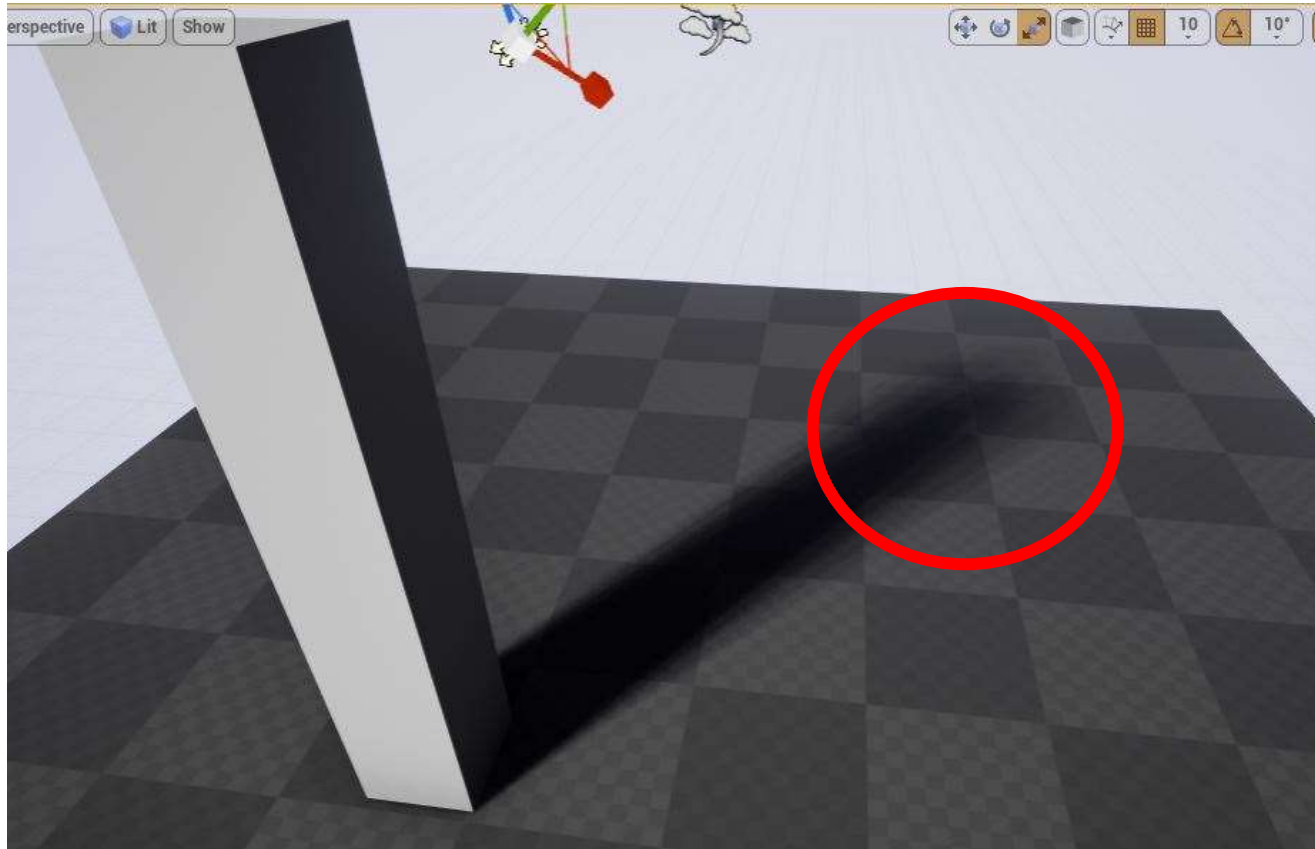
Do you like games?

Have you ever made games?





Game Engines Handle It.



<https://forums.unrealengine.com/t/soft-shadows/68721>

All you need is,





3D simulators in the world



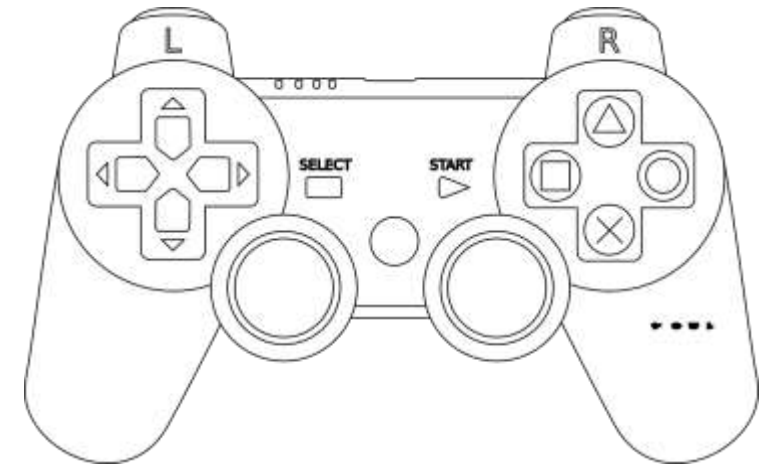
photo from  **CIRCUIT DIGEST**

3D simulators in the world

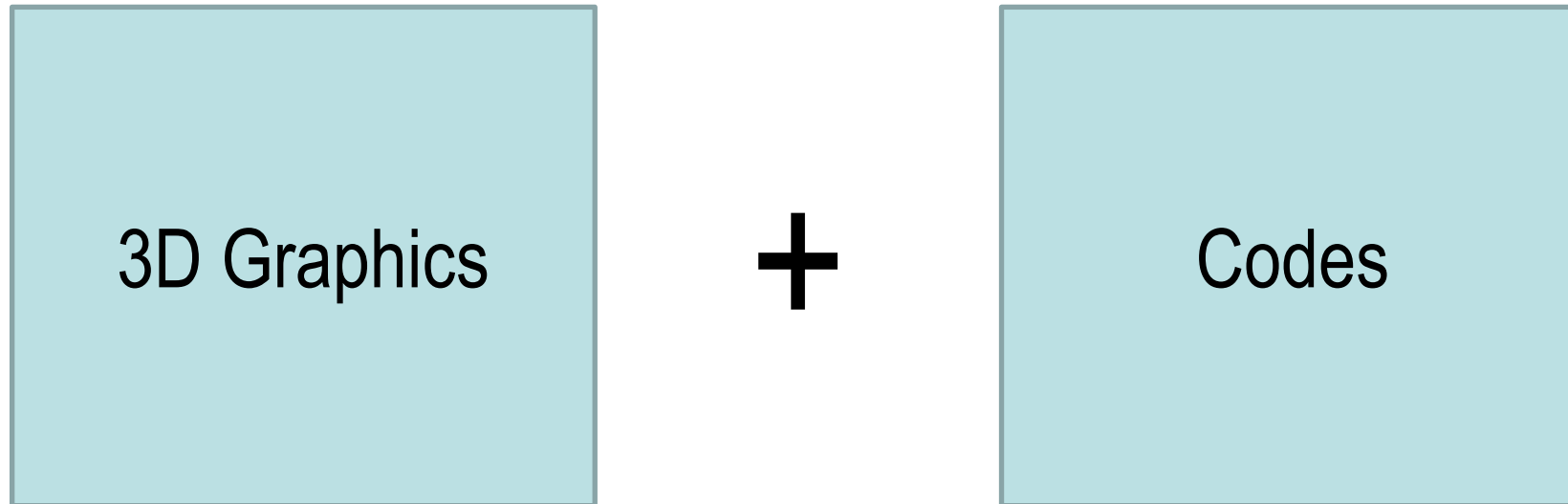


From Korean youtube creator
“Beginner forever”

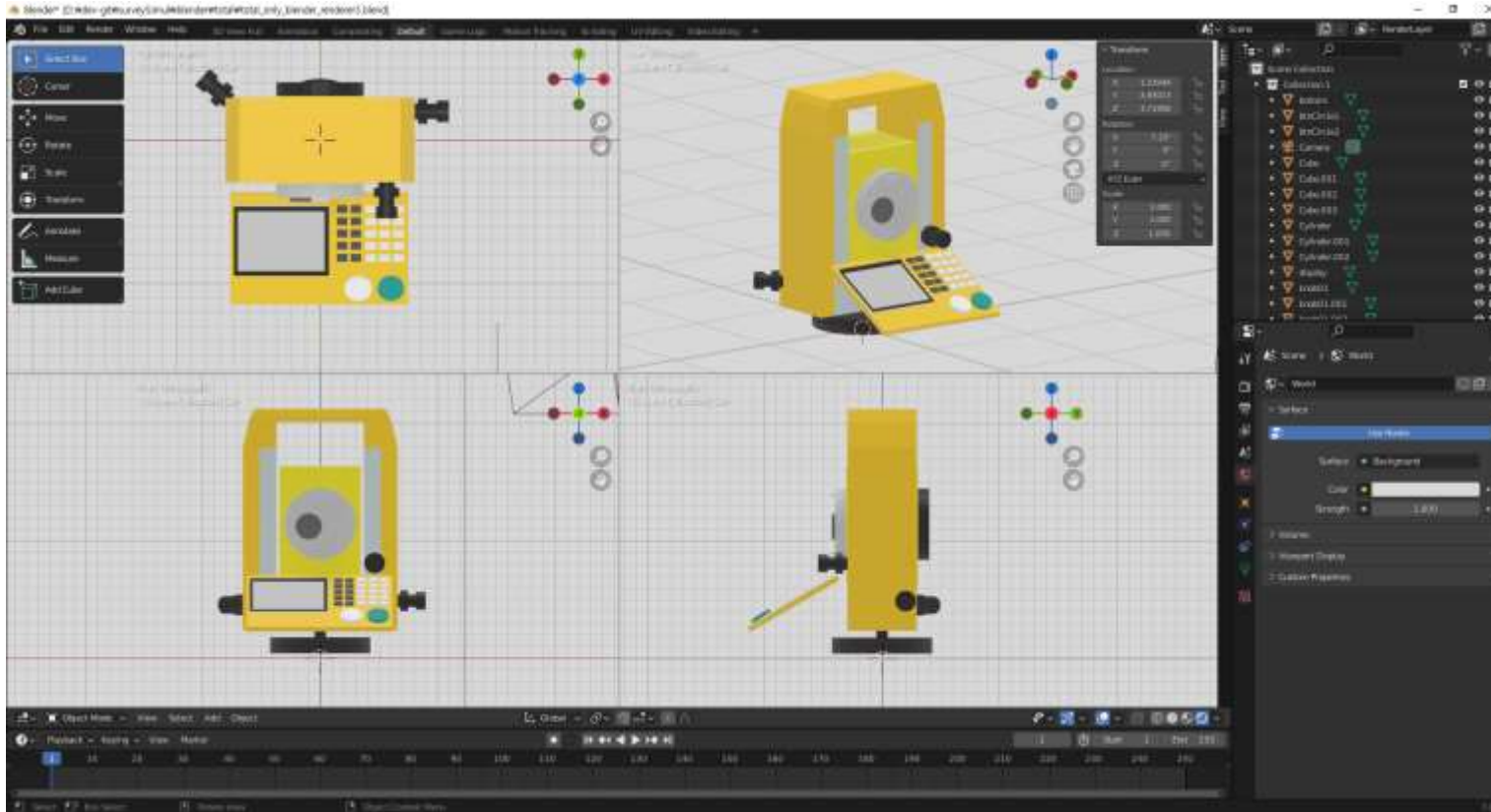
3D simulator for surveyor's training



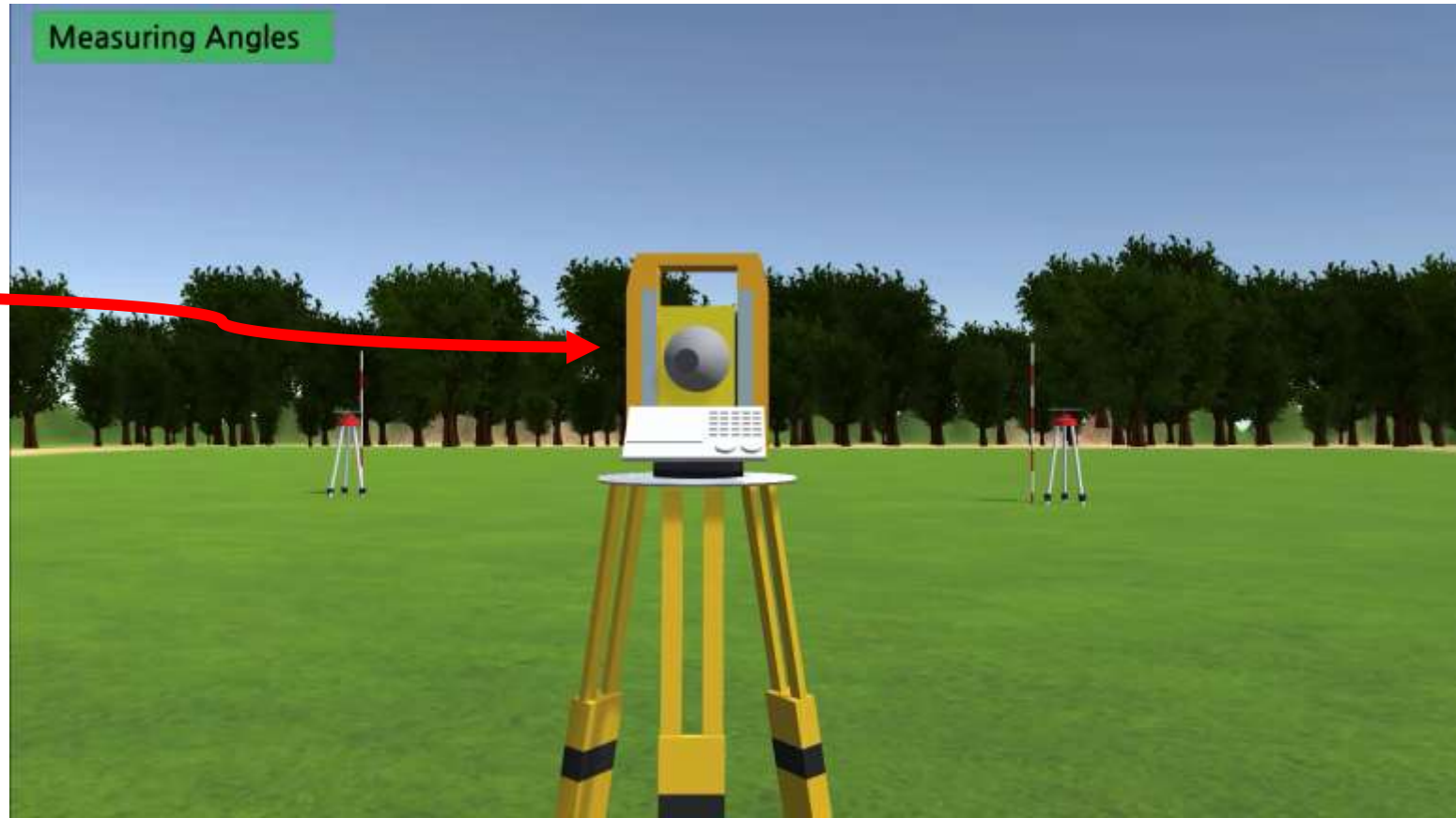
2 parts Game Engine requires



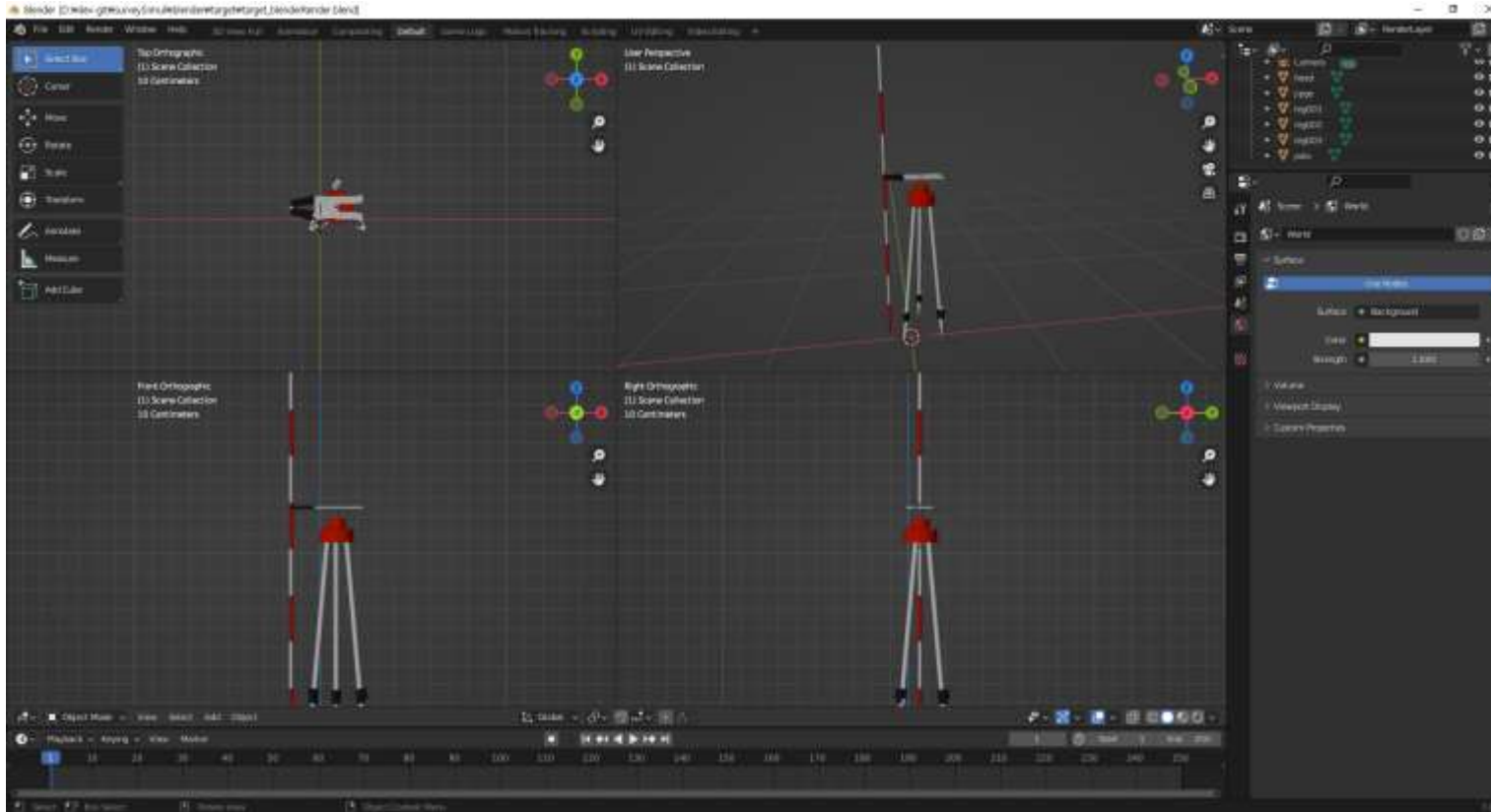
3D modeling using Blender



3D models into game engine



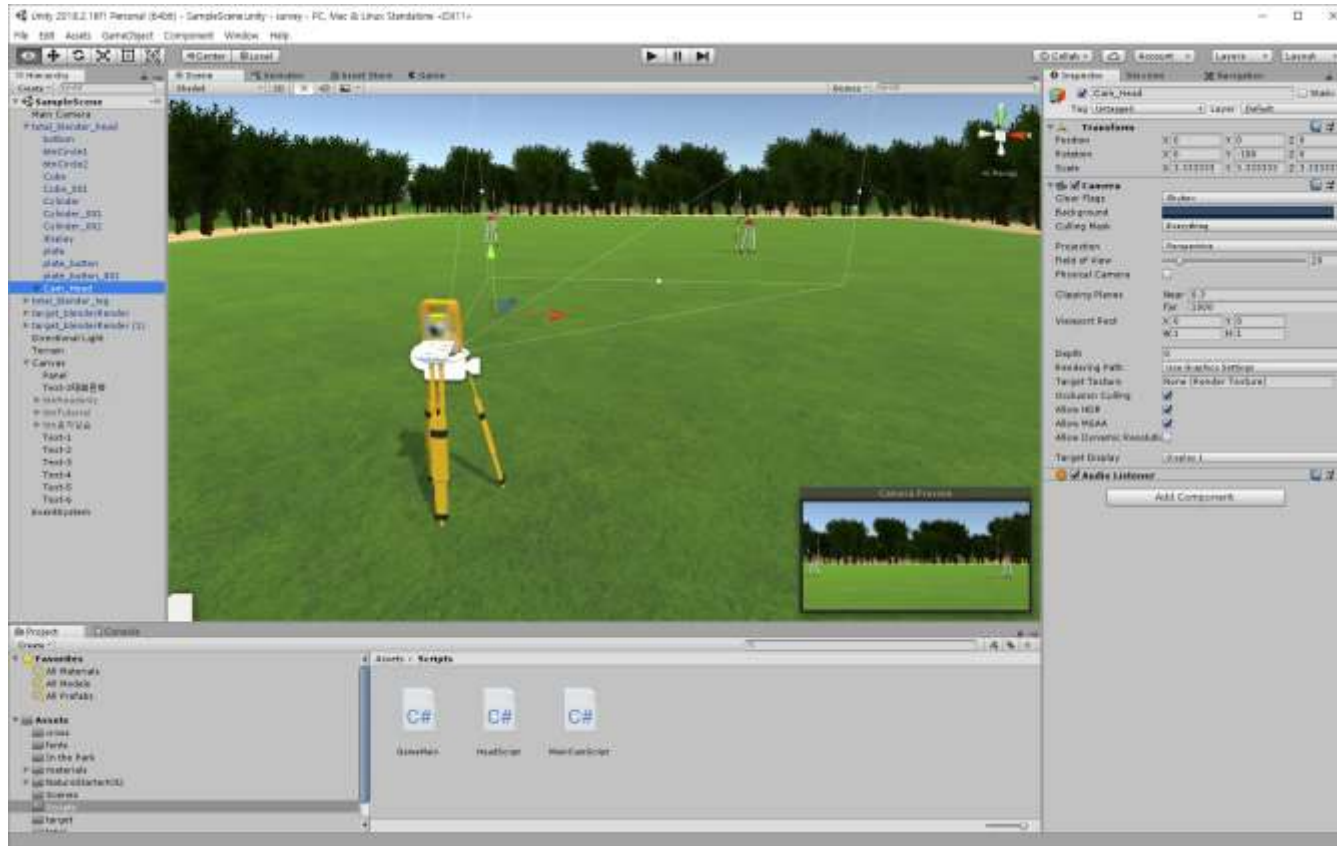
3D modeling using Blender



3D models into game engine



3D Game Engine(Unity 3D)



All programming scripts

GameMain.cs

HeadScript.cs

MainCamScript

GameMain.cs(45lines)

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class GameMain : MonoBehaviour
{
    // Use this for initialization
    void Start () {
    }

    // Update is called once per frame
    void Update ()
    {
        // 버튼을 누른 처리
        // Y버튼
        if (Input.GetButtonDown("Jump"))
        {
            //Debug.Log("Y버튼 : 측량시작");
        }
    }
}
```

```
// B버튼
if (Input.GetButtonDown("Fire2"))
{
    Debug.Log("B버튼");
}

// X버튼
if (Input.GetButtonDown("Fire3"))
{
    Debug.Log("X버튼 : HeadLock");
}

if (Input.GetButtonDown("HeadLock"))
{
    Debug.Log("HeadLock");
}
}
```


HeadScript.cs(201lines)

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;
using UnityEngine.UI;
```

```
public class HeadScript : MonoBehaviour
{
    public Camera CamMain;
    public Camera CamHead;
    public GameObject CrossObj;

    public Text Swing1Text;
    public Text Swing2Text;
    public Text Swing3Text;
    public Text UserAnswerText;
    public Text RightAnswerText;
    public Text GapText;

    bool m_bSurveyMode = false;
```

```
// 사용자가 찍을 4개의 점.
Vector3[] m_arVecPoint = new Vector3[4];

// 사용자가 받아온 3개의 각도
float[] m_arUserPoint = new float[3];

// 현재 찍은 점의 갯수
int m_nCurrentPoint;

// 정확한 측량값
float m_nCorrectAnswer;

// Use this for initialization
void Start ()
{
    Debug.Log("HeadScript Start");

    m_nCurrentPoint = 0;
    m_nCorrectAnswer = 32.75471f;
}
```



MainCamScript.cs(16lines)

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class MainCamScript : MonoBehaviour {

    // Use this for initialization
    void Start () {

    }

    // Update is called once per frame
    void Update () {

    }
}
```


Various cases



and space, someday.

Thank you for your attention.

If you have any questions,
Please feel free to email me.

mskim@lx.or.kr