Assignment 1

Isometric Mobile game environment

6 week project

This project will provide a good basis for you to explore the artistic and technical processes involved in creating a mobile game environment.

This project will establish good practice in art direction and research through to the creation of assets, their implementation in the UE4 game engine and finally exported to a tablet

As a games artist you might be expected to build and or add on to an established environment, adding content in an established pipeline. The parameters / metrics for the level for the level will be established and we will review them in class

So in this project you get to design and create your own world but it has to be within technical limits already set

High concept

Your task is to design and create your own themed room or world as well as finding ways to marry art styles that transition from a common area to your individual room.

You will have one week to establish your art bible before you start to create the artwork.

Additional Resource for Art Direction

http://www.gdcvault.com/play/1021803/Art-Direction-Bootcamp-7-Habits

http://www.gdcvault.com/play/1021804/Art-Direction-Bootcamp-Demystifying-Art

http://www.gdcvault.com/play/1021805/Art-Direction-Bootcamp-How-I

http://www.gdcvault.com/play/1021807/Art-Direction-Bootcamp-Cinematography-for

http://www.gdcvault.com/play/1021808/Art-Direction-Bootcamp-Concept-Art

https://www.youtube.com/watch?v=Wokv1sj8BXE&authuser=1

Interface and camera

- Top Down template or Side Scroller template in unreal

- This will be an interactive demo showing your art in context and you should adapt the art to suit the game camera and navigation, an example would be adding more detail at the top or bottom of an object depending on where the camera is placed

Points to consider

- Aim to make the environment feel alive, perhaps through changes in lighting or objects moving when buttons are pressed for example.
- You are responsible for your own interior space artistically and technically.
- You will have to follow strict metrics, including collisions, geometry and Texture restrictions as well as use of light-maps and simple game states (These will be introduced in class)
- you will decide on a subject for your project and research suitable reference material, create an art bible and present ideas
- Your subject can be a stylised or realistic interior space, you will then model, texture and light to specific platform requirements
- Export to a Game Engine and then if time allows publish to a Mobile format.
- To ensure your project is achievable and meets the requirements of the assignment we recommend you choose a subject for which you can obtain good reference material.
- We expect you to push yourself and you should consider choosing a relatively complex environment with a rich mix of materials, textures and lighting.
- You tutor will be able to offer guidance on this when you come to decide on your project.

Game context

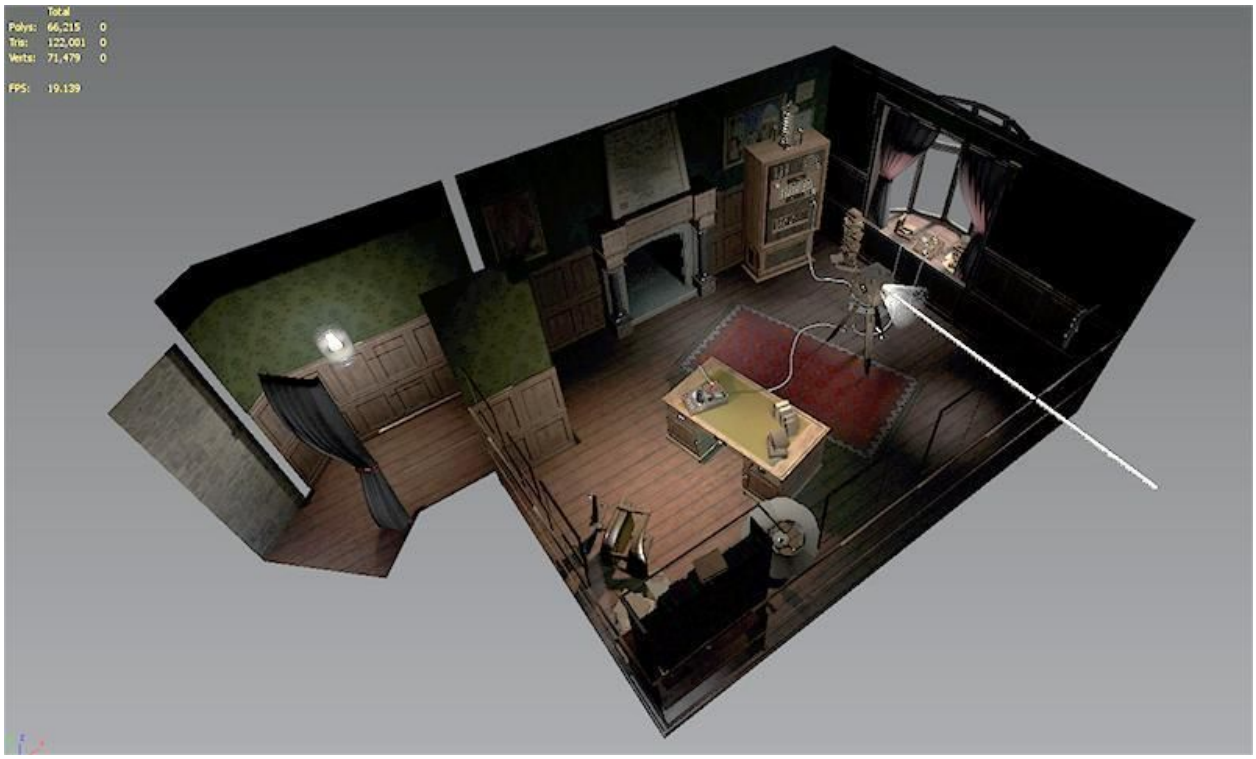
Studio: Fire Proof Studios

Game: The Room

Tech break down

Polycounts - we don't really pay attention to polycounts, it's unusual for the framerate to drop due to polycount. It's almost always caused by over complexity of lighting/shaders/drawcalls. Generally, we try to use just enough polys so things don't look faceted and add bevels to edges wherever we can.

This room from The Room 3 has about 120,000 polys in it



Texture budget - we have a budget of about 60 Megs per level split between meshes and textures. It usually works out to be a roughly 50/50 split so 30 Meg for textures. After compression 30 Meg ends up being roughly 150 512*512 textures. (Though some textures may be uncompressed for quality reasons and textures with alpha channels are larger.)

We mostly use the alpha channel of the diffuse texture for specular strength and sometimes have a normal map, though we try to minimise these as they are more complex to render and pixel performance is usually the first place we see framerate drop. Objects seen up close often use 1024*1024 textures.

Shaders - We use custom shaders for everything, our main shaders are BRDF based with a multiply blended UV2 channel for lightmaps and colour tints for diffuse and spec to allow us to get more variety from fewer textures.

Lighting - Almost all the light is baked in max with (the image above is an unlit max viewport with lighting baked onto the objects) On top of the bake we have 3 real time lights in unity - one specular casting main directional light and 2 non specular casting fill lights.

Project Technical restrictions

Polycount

- 120,000 maximum

Texture budget

- Close up important objects: textures 1024*1024
- Far textures 512*512
- Alpha channel can be used for transparency

- Format for textures: Targa

***All textures need to be power of 2 and square (rectilinear is not good for IOS compression)**

Light maps

- Maximum 2048*2048
- 2 UV channels, 1 for texture, 1 for lightmaps
- Lights to be baked in Unreal

Key optimisation considerations

- Frame rates dropping out due to over complexity of Lighting
- Shaders, Batching and Drawcalls (we will cover all technical considerations in class)
- If your models / scene can be made from modular Blueprints then that will be more efficient

Artistry

You are being judged on your ability to balance the many formal elements that contribute towards the design and creation of your environment

Consider

- Tonal balance between textures on different objects.
- Balanced lighting that evokes a mood and contributes to the narrative of the scene.
- Shapes and forms that have sensible distribution of detail throughout so there is a consistent level of detail in the environment as a whole.
- Art direction and research underpin and inform your choices, do not rush this process.

Mobile Games Example

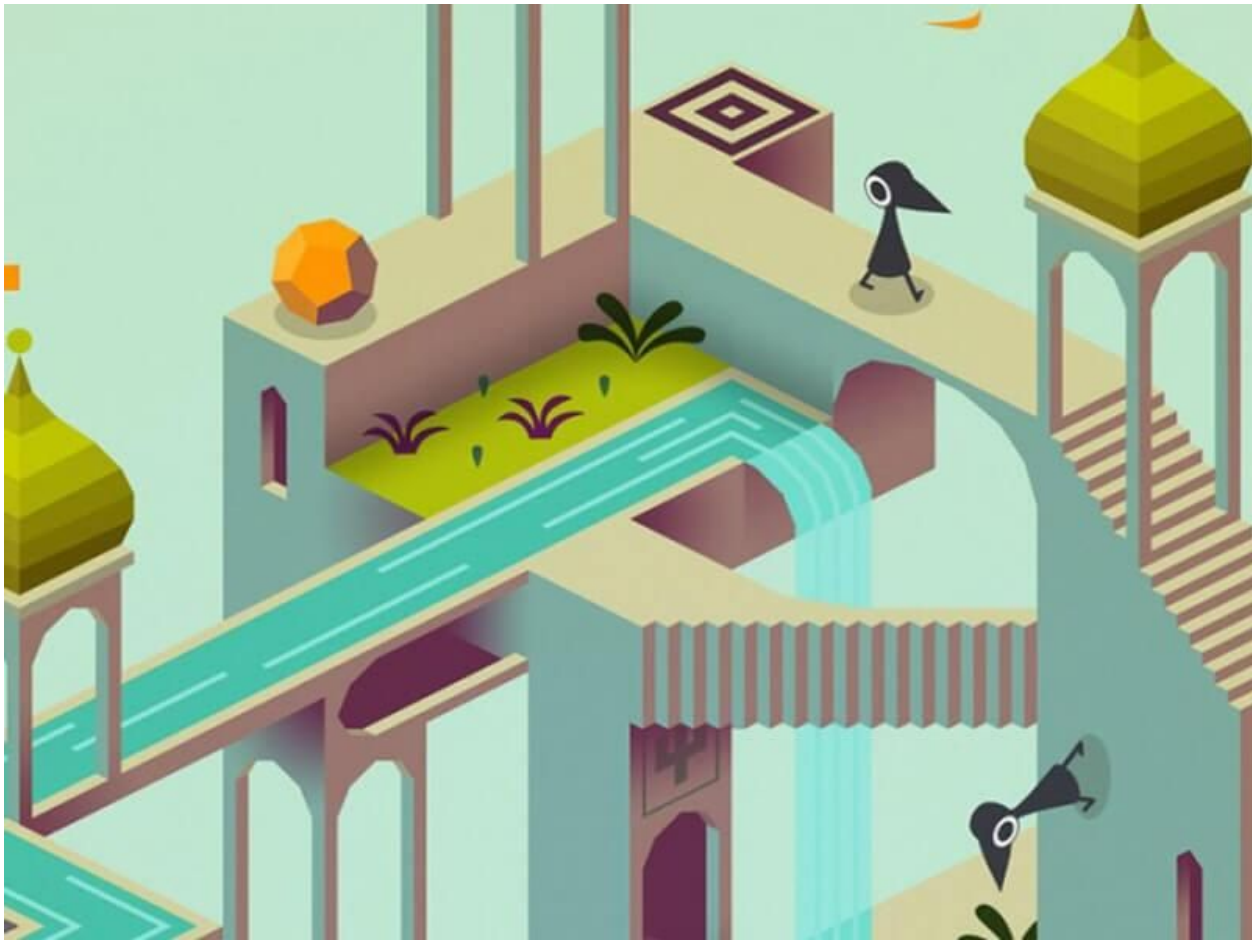
Riddick: The Merc Files

Lara Croft: Go

Hitman Go

Clash of Clans

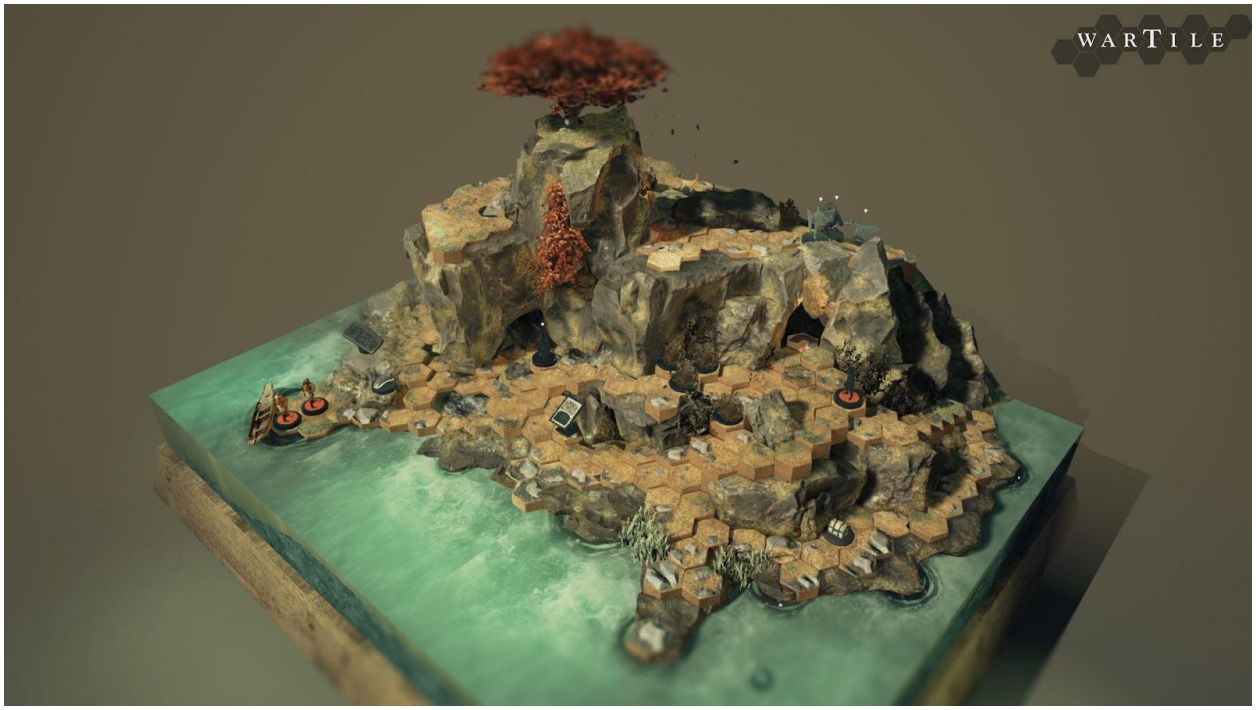
Ghost of Memories



Monument Valley

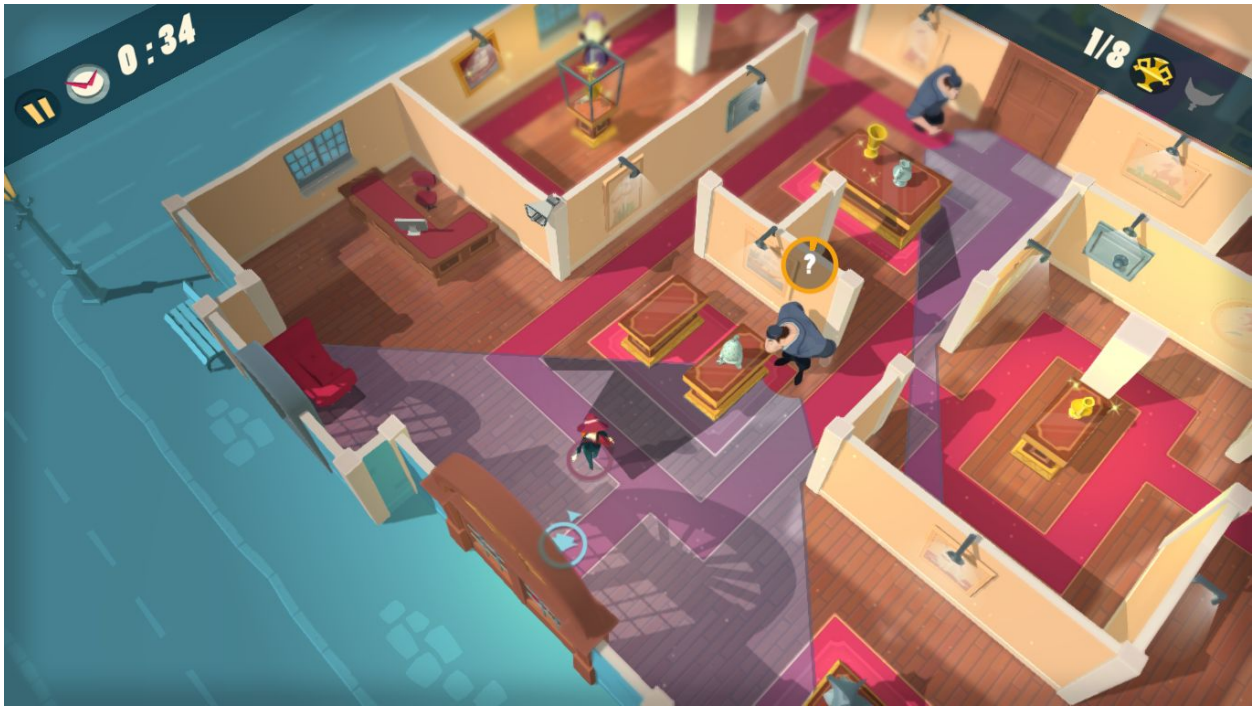
PC/Console

Tokyo 42



Wartile

Lara croft and the temple of Osiris



The Marvellous Miss Take

How to Survive

The Incredible Adventures of Van Helsing

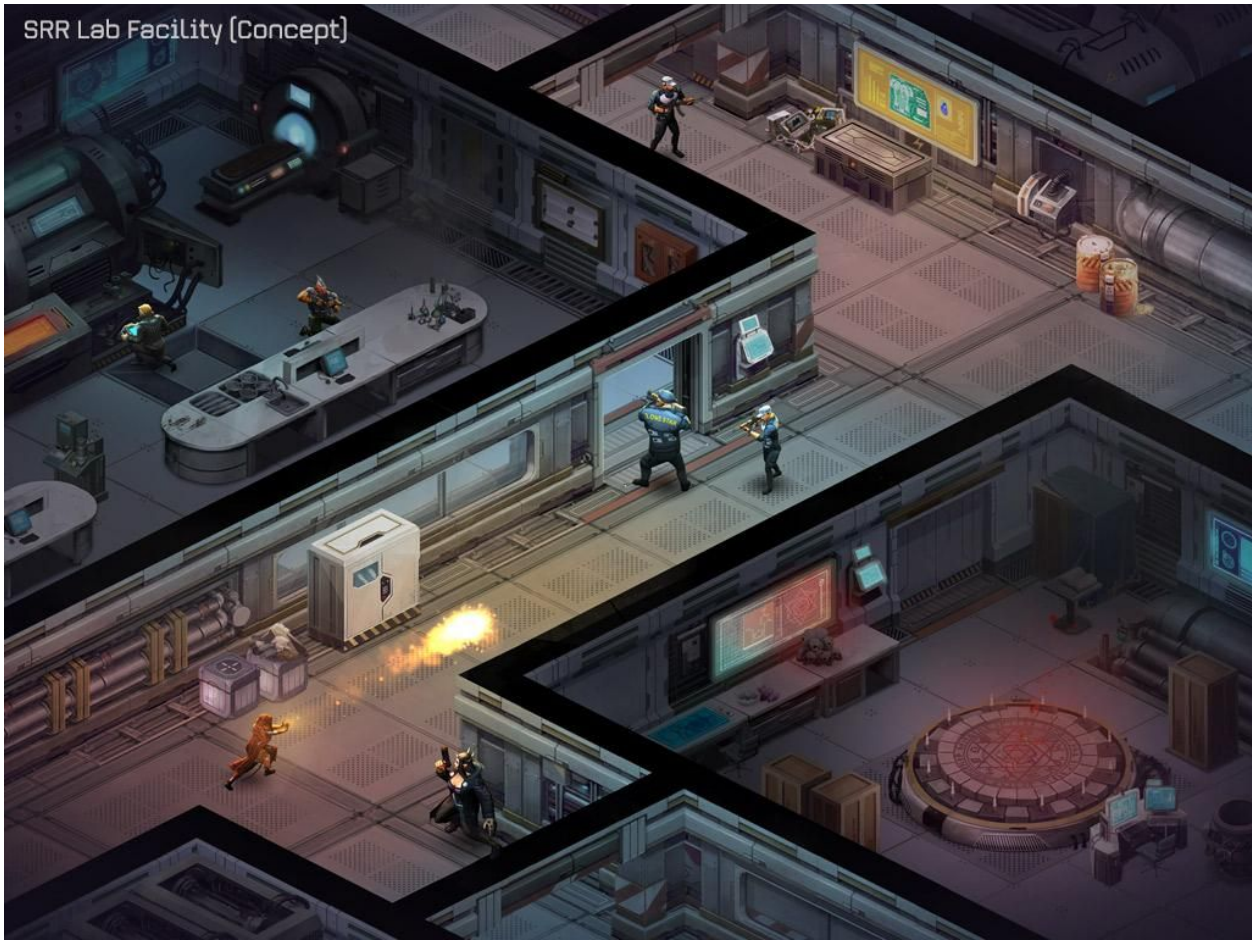
Expeditions: Viking

Stasis

Diablo 3

Interior – Victor Kudryashov

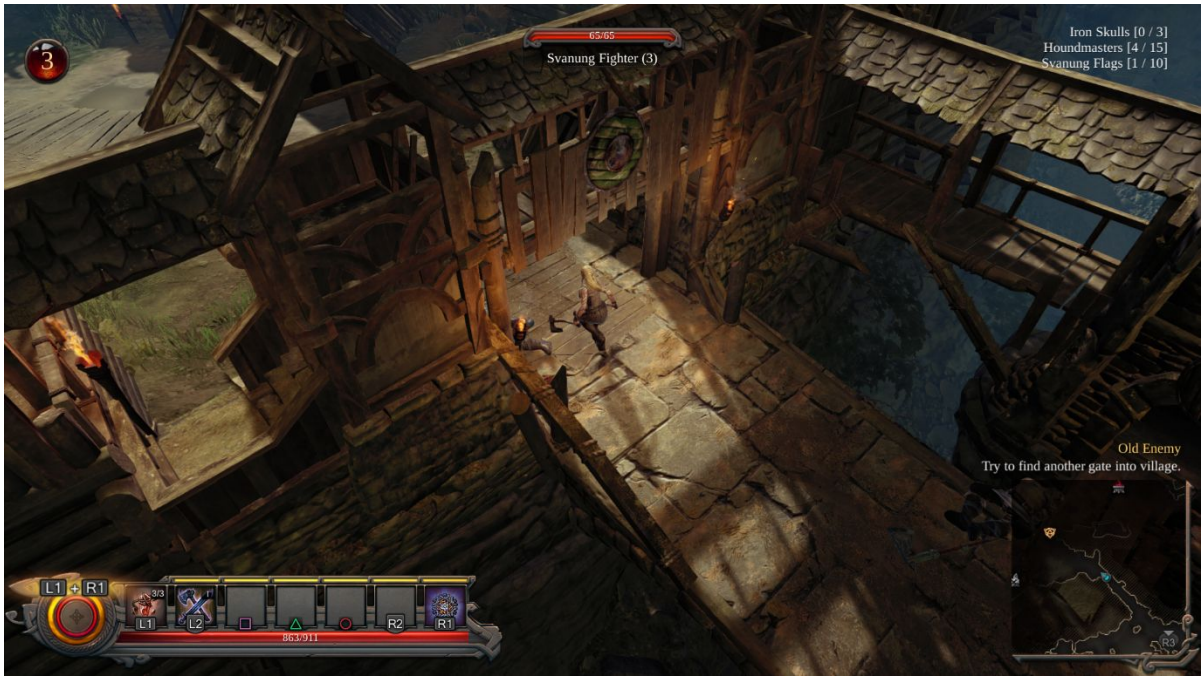
Bastion



SRR Lab Concept

The Wild Eight

Interiors – Manufactura K4



Viking: Wolves of Midgard

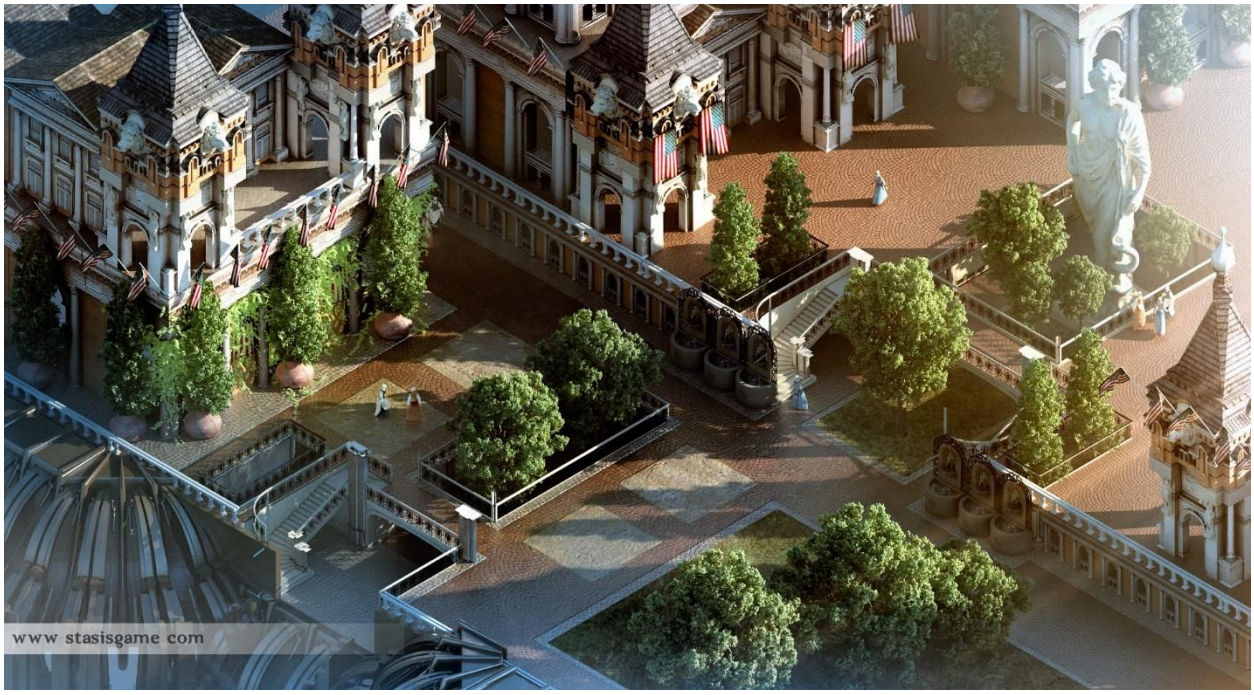
Warcraft 3

Dungeons 2

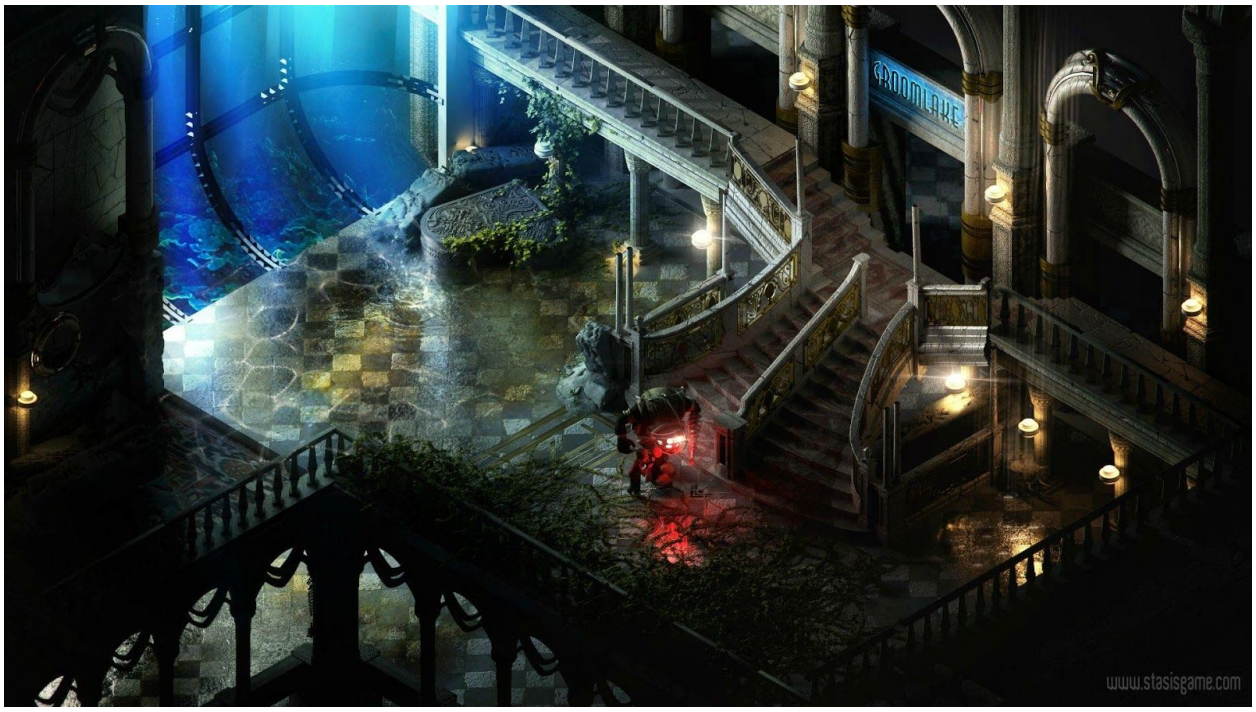
Hatred

Commandos 2

Wastland 2



Bioshock Infinite Isometric



Bioshock Isometric

Assassin's Creed Isometric

Side Scrolling Game Examples

Counter Spy Dynamighty

Leos Fortune -

Samorost 3

Oddworld

Rad Rogers

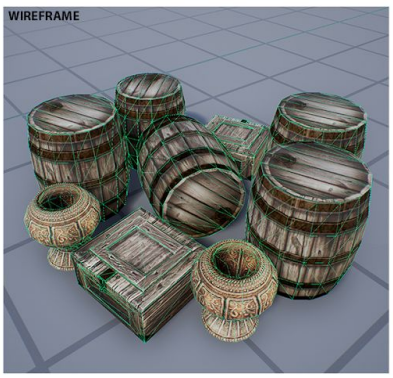
Limbo

Dead light

Polycount Examples

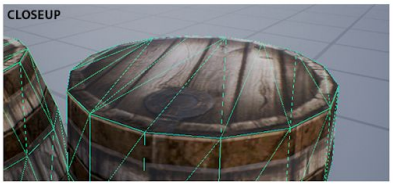
TOMB RAIDER UNDERWORLD

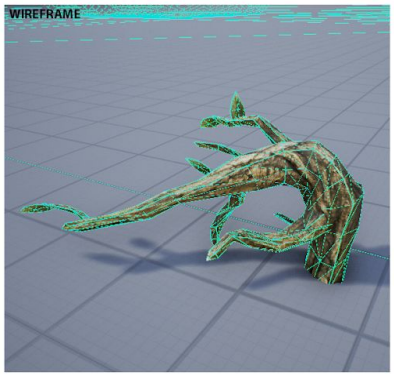
Tomb Raider Underworld
by Aaron Gaines
bigfuzzygoat.com



INFINITY BLADE III

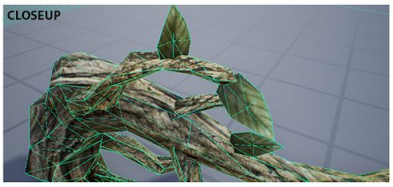
Breakable Barrels and Crates
1,708 triangles
1 x 1K texture





INFINITY BLADE III

Tree Branch
587 triangles
1 x 1K texture

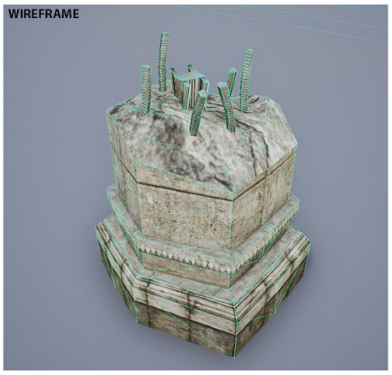


TOMB RAIDER
UNDERWORLD

Tomb Raider Underworld
by Aaron Gaines
bigfuzzygoat.com

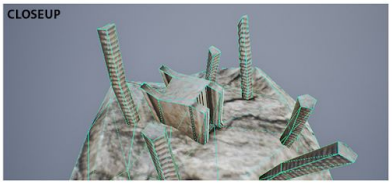
UNCHARTED
GOLDEN ABYSS

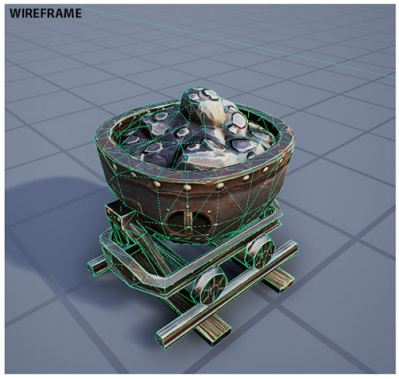
Golden Dragon
by Joseph Pape



INFINITY BLADE III

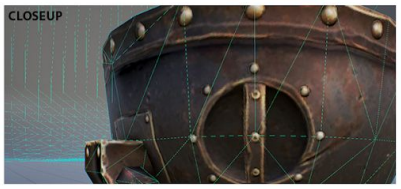
Broken Column
602 triangles
1 x 1K texture





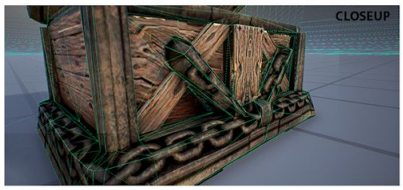
INFINITY BLADE III

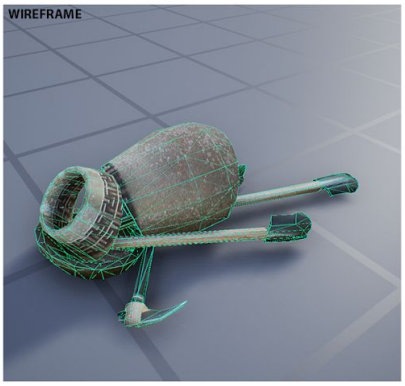
Metal Cart
948 triangles
1 x 1K texture



INFINITY BLADE III

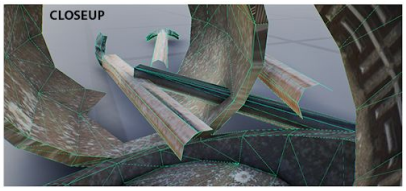
Treasure Chest
1,474 triangles
1 x 1K texture

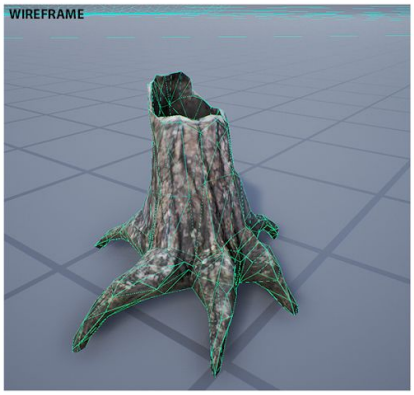




INFINITY BLADE III

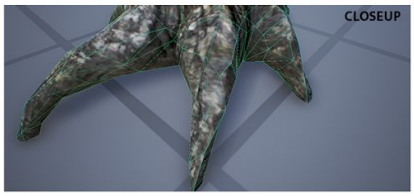
Broken Pot
842 triangles
1 x 512 texture





INFINITY BLADE III

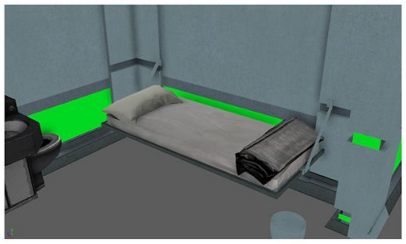
Tree Stump
596 triangles
1 x 512 texture



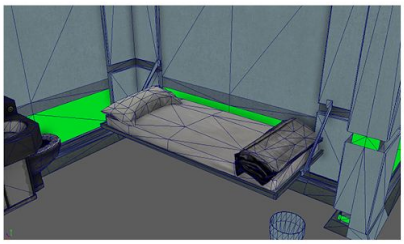
INFINITY BLADE III

Pillar
470 triangles
1 x 1K texture

ASSET

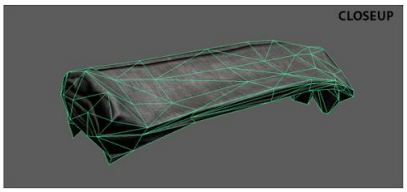


WIREFRAME



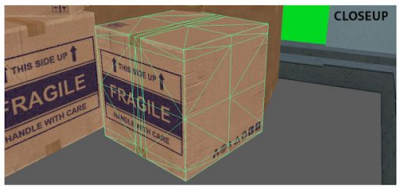
RÉPUBLIQUE

Bed
632 triangles
3 x 512 materials



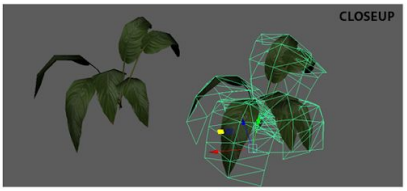
RÉPUBLIQUE

Cardboard Boxes
996 triangles
3 x 512 materials



RÉPUBLIQUE

Plant Pot
963 triangles
2 x 512 materials



Assignment 1: Product (60%)

The assessment will test Learning outcomes: K1, K2, K3, I1, I2, I3, S1, S2, S3, T1, T2, T3

This will require students to decide on a subject for their project and research suitable reference material. The subject can be a realistic or stylised interior space which they will then model, texture, light to specific platform requirements, export to a Game Engine and then publish to a Mobile format. To ensure that the project is achievable and meets the requirements of the assignment students should choose a subject for which they can obtain good reference material. We expect students to push themselves and they should consider choosing a relatively complex environment with a rich mix of materials, textures and lighting. The tutor will be able to offer guidance on this when students come to decide on their project

Assignment 2: Retrospective (40%)

The assessment will test Learning outcomes: K1, K2, K3, I1, I2, I3, T3

This will require students to create a logbook of their progress through the project. This logbook should be in the form of an online blog and as well as containing written elements (c.2000 words) it should also contain images and video to help describe the development of the project. The aim is to provide detailed insight into the tools and techniques the students are learning as well as the creative and technical decisions they make. It is expected that the student will provide some critical analysis of their own work in the context of current and emerging theory and practice and draw some conclusions from it.

Marking scheme:

- Understanding of art direction / choice of environment/overall concept 20%
- Modelling 20%
- Materials and textures 20%
- Lighting and effects 20%
- Understanding of technical art and development process 20%

The intended subject specific learning outcomes

On successful completion of this module, students will have Knowledge & Understanding (K) of…

K1 - The iterative processes and techniques involved in the creation of immersive and engaging video games

K2 - The trends in mobile games production and their impacts on the production process

K3 - The relationship between code, design, art and prototyping.

On successful completion of this module, students will have Intellectual (I) Skills in…

I1 - Critically evaluating and selecting artistic and technical solutions in relation to the limitations of a mobile video game production

I2 - Analysing the impacts of design, art and technical issues and iterate to inform new solutions

I3 - Employing agile practices in reaction to changes in project production

On successful completion of this module, students will have Subject Specific (S) Skills in…

S1 - Using industry standard Video Games tools and techniques to create 2D and 3D content for use in a real-time Interactive level to a professional standard.

S2 - Creating materials and textures within the strict technical limitations of mobile technology

S3 - Creating/using art and design bibles for the process of constructing visual tools to inform production

12. **The intended generic learning outcomes**

On successful completion of this module, students will have Transferable (T) Skills in…

T1 - Working to meet individual and group objectives

T1 - Researching, designing, planning and delivering a project that can adapt to meet a strict set of industry objectives within time and in technical budget

T2 - Communicating and presenting to a variety of audiences in a technical and creative context.

A synopsis of the curriculum

The aims are:

● To develop students' understanding of advanced 3D and 2D techniques in the mobile game space for use in a professional video games environment.

● Develop a mobile level with navigation, simple state changes and export to a tablet or web format

Keywords: 3D, modelling, lighting, texturing, game engine

Outline syllabus:
● Modelling for Games
● Game design for Artists
● Unreal basics
● LOD's / Batching / Collisions and Culling
● Lighting in Maya / Lighting in Unreal
● Light baking and Lightmaps in engine
● Normal maps generation and editing
● Texturing for Games
● Tiling textures and substance
● Multiple UVs and overlays
● Introduction to art direction
● Animation