

# EPL 426

Andreas Andreou

# How I am

- ▶ My name is Andreas Andreou
- ▶ Bachelor Degree, Computer Science (Ucy)
- ▶ Master Degree Design and Development of Computer Games and Interactive Technologies
- ▶ Experience: Ucy, Leegree, The Cyprus Insitute ...
- ▶ Present: Senior programmer at [Qiiwi Games](#)
- ▶ And my own projects at [Hellmade Games](#)

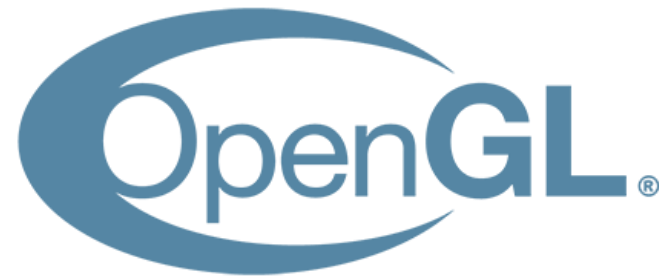


# Contact info

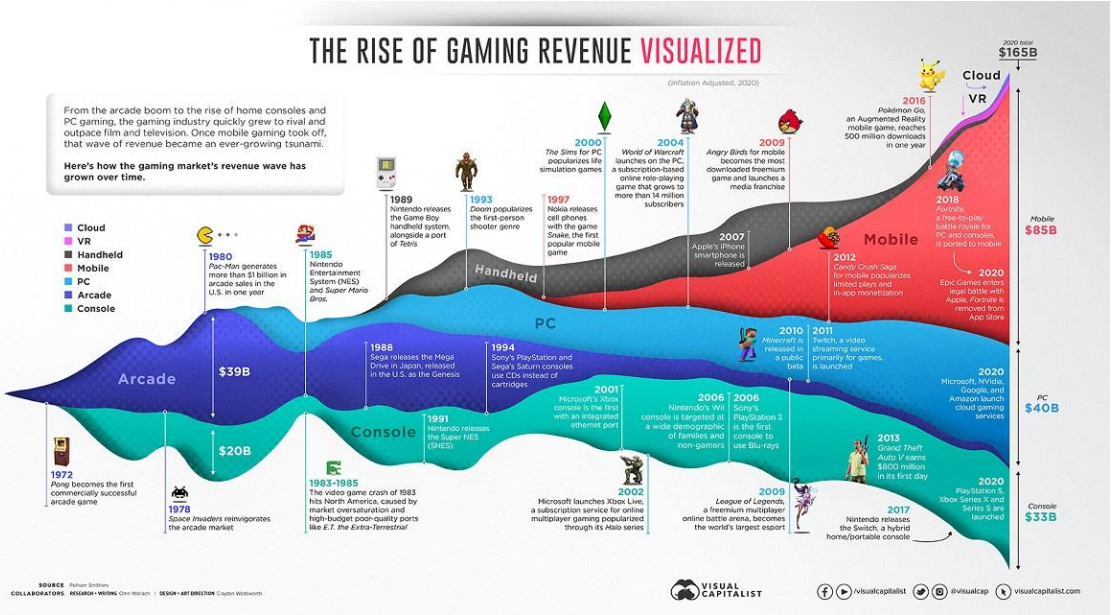
- ▶ Email: [aandre01@cs.ucy.ac.cy](mailto:aandre01@cs.ucy.ac.cy) & [aandreou.cs@gmail.com](mailto:aandreou.cs@gmail.com)
- ▶ Hours: Usually available after 18:00
- ▶ Wednesday, 18:00-19:30

# Lab Info

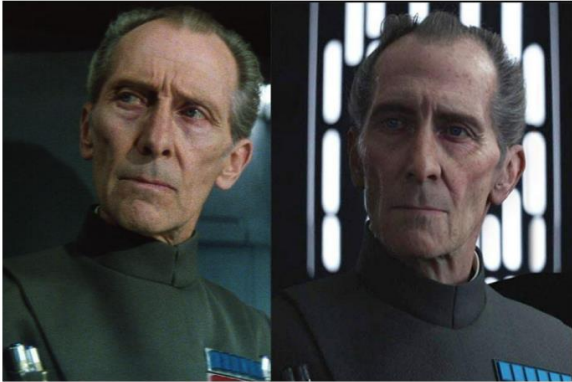
- ▶ Classroom attendance is mandatory
- ▶ You must have your camera on during the lecture
- ▶ Parts:
  - ▶ OpenGL
    - ▶ Miro Ray Tracer
    - ▶ Camera, lights and object setup
    - ▶ Phong Shading
    - ▶ OpenGL and Transformations
  - ▶ Unity3D
    - ▶ Intro
    - ▶ Scripting
    - ▶ Materials
    - ▶ Physics
    - ▶ Shaders and Shader graphs
- ▶ Assignments : 1 OpenGL (15%) + 1 Unity project (groups of 2 people) (25%)



# Graphics and Games evolution



# Photorealistic Graphics



Miro raytracer

# Realtime Graphics

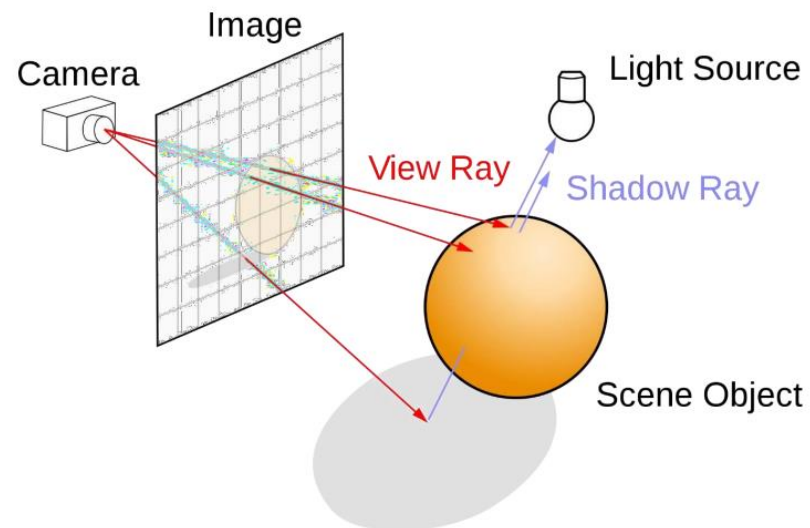


Unity



# Raytracing

- ▶ Η πιο απλή μέθοδος παραγωγής γραφικών
- ▶ Στέλνουμε ακτίνες από το σημείο του παρατηρητή (camera) προς κάθε pixel της εικόνας
- ▶ Βρίσκουμε τομές με αντικείμενα της σκηνής
- ▶ Στο σημείο τομής βρίσκουμε το χρώμα του αντικειμένου -> χρώμα του pixel



# Miro

- ▶ Ένας απλός raytracer
- ▶ Υλοποιεί όλα τα πιο πάνω
- ▶ Θα προσθέσουμε λειτουργίες και δυνατότητες

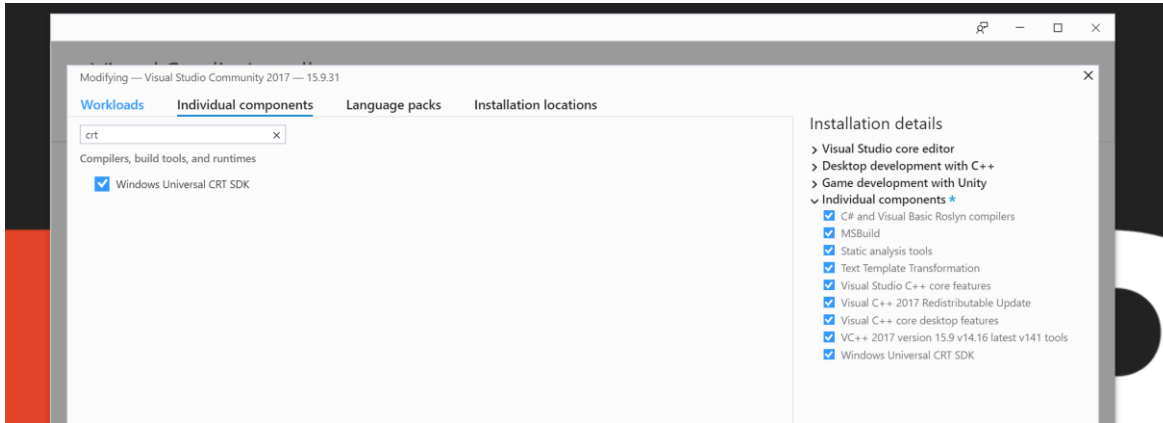


# Prerequisites

- ▶ Βασική γνώση C/C++ (πολύ παρόμοια με Java, C# κλπ.)
- ▶ Μαθηματικά 1ης λυκείου (πάνω-κάτω :)

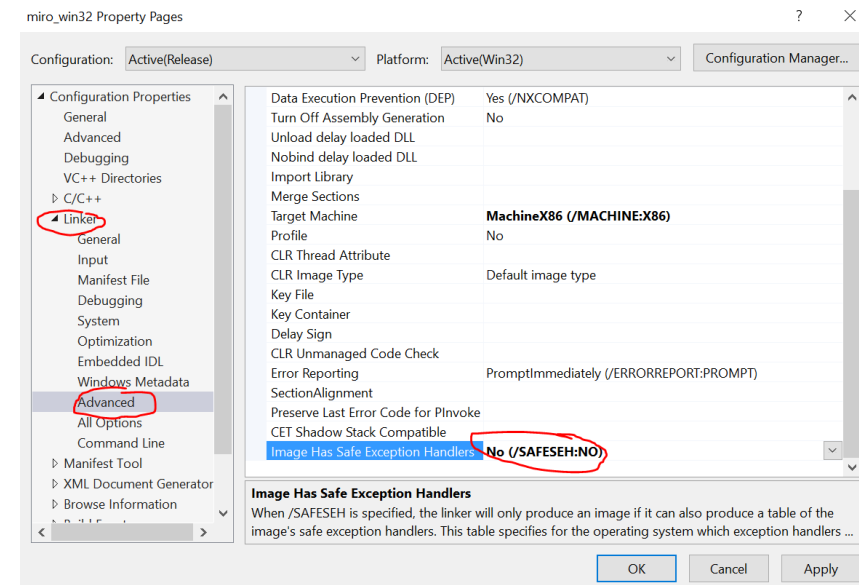
# Install Miro

- ▶ Download VS 2019 (or other)
- ▶ Download Miro form 426 site (<https://www.cs.ucy.ac.cy/courses/EPL426/> )
- ▶ Make sure you have the c++ tools and compiler
- ▶ If you have compiler errors check those:



```
cprintf(TEXT_PINK "warning: " TEXT_NORMAL);  
cprintf(__internal_console_buffer__);  
}
```

Space



Miro main keys: (W,A,S,D,Q,Z) +  
(R,G) + I