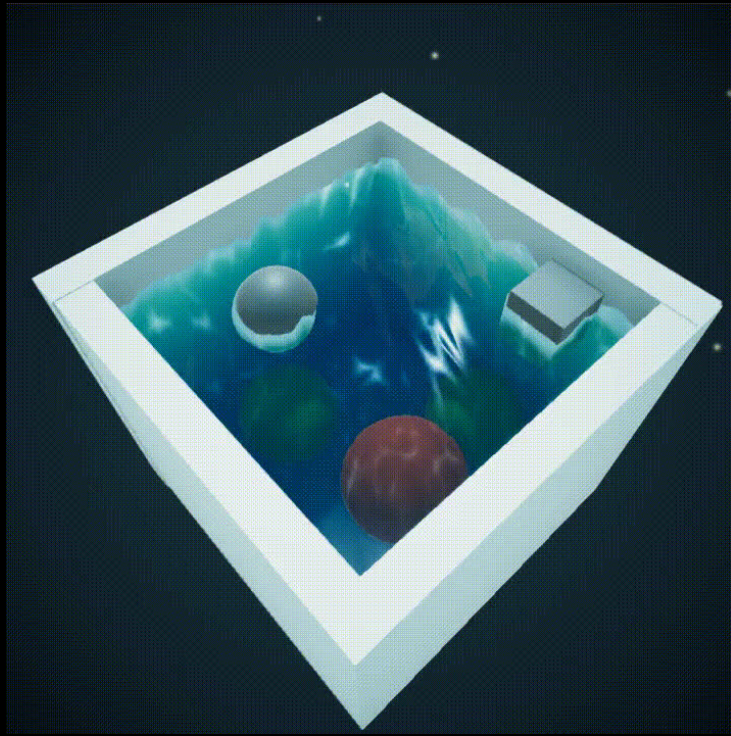


# COMPUTACIÓN GRÁFICA

Sergio Peñaloza







**C**



CONCEIVE

**D**



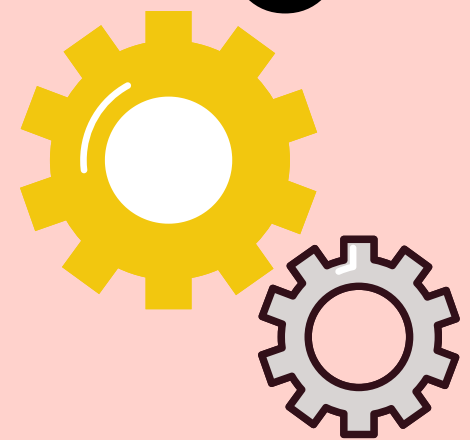
DESIGN

**I**



IMPLEMENT

**O**



OPERATE

## CONOCIMIENTOS SUGERIDOS

- Conceptos matemáticos básicos (álgebra, geometría de vectores, cálculo diferencial)
- Sintaxis de programación básica (ifs, ciclos, funciones, constantes, variables)
- Programación orientada a objetos
- Resolución de problemas de manera organizada usando lenguajes de programación
- Colores y formas
- Animación y sus 12 principios

## CONOCIMIENTOS RECOMENDADOS

- Álgebra lineal
- Modelado 3D
- Concept Art
- Conceptos de C/C++ (punteros, stack y heap, Macros, preprocessor directives)
- Modelamiento matemático
- Ecuaciones diferenciales

# EVALUACIÓN DEL CURSO

- Seguimiento VFX - 10% (5 retos)
- Parcial VFX - 20%
- Seguimiento shaders - 10%
- Parcial shaders - 10%
- Pre producción proyecto final - 10%
- Proyecto final - 40%



**VFX**

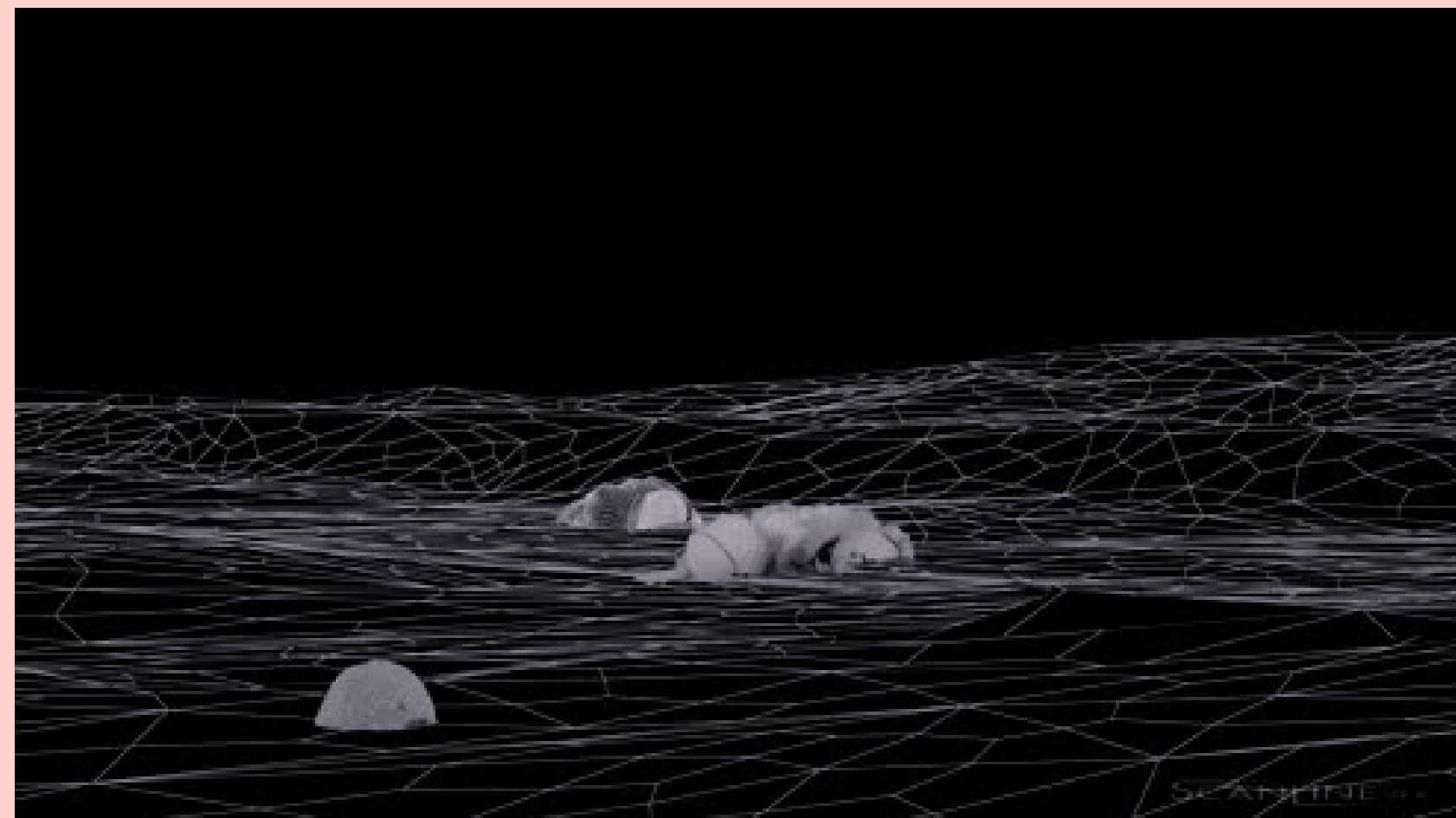
“VFX artists add the wham, bam, crash and wallop to games. They create anything that moves that isn’t a character or an object. They create dust, water, explosions and superpowers. VFX artists use digital art software, alongside traditional art insights to create realistic effects that are stunning, like a tornado, or subtle, like slow moving clouds.”

# VFX

“Visual effects (VFX) is a term used to describe imagery created, manipulated, or enhanced for any film, or other moving media that doesn't take place during live-action shooting.”



**SIMON**  
**TRUMPLER**



**SCANLINE VFX**  
**(GOT)**



# REALTIME VFX

“When talking exclusively about VFXs, I would talk about 2 major types of tasks: gameplay effects and environmental effects.”

(...)

“90% of the vfx tasks consisted on character powers, magics,... that really make an impact on the gameplay. These kind of tasks require a big understanding of the game mechanics and involve constant communication with the design team, with which you have to constantly negotiate.”

(...)

“There are other game genres, like for example shooters (specially realistic ones), where the environment effects are equally important to the gameplay ones. Here, the VFX Artist in charge of environmental effects becomes almost an environment artist and most of the collaboration will be with this team. Examples of environmental effects are waterfalls, mist, rain, etc. ”



**REALTIME VFX**

# PRINCIPIOS DE LA ANIMACIÓN

- Squash and Stretch
- Anticipation
- Staging
- Straight ahead and pose to pose
- Follow through and Overlapping
- Ease in / Ease out
- Arcs
- Secondary Action
- Timing
- Exaggeration
- Solid drawing
- Appeal



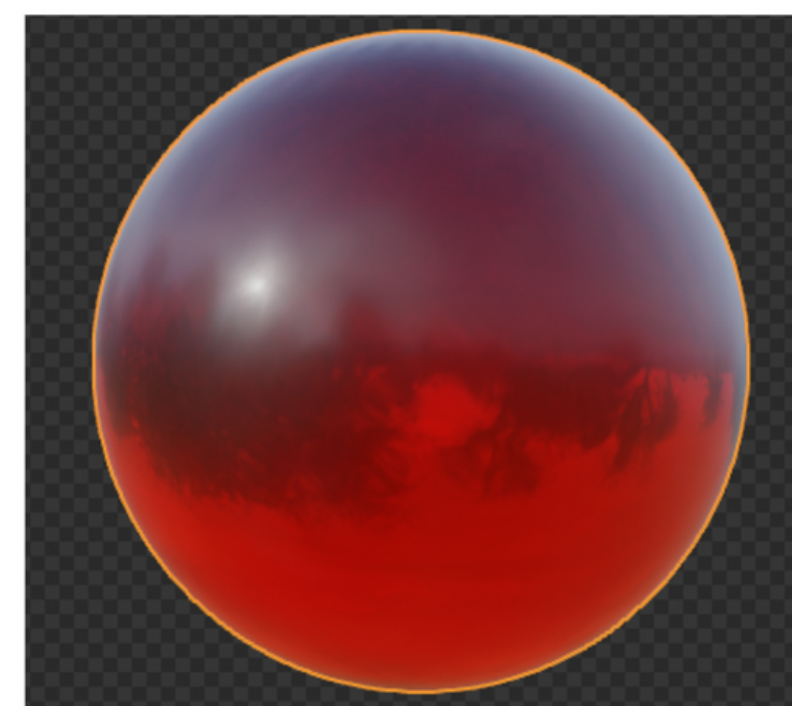
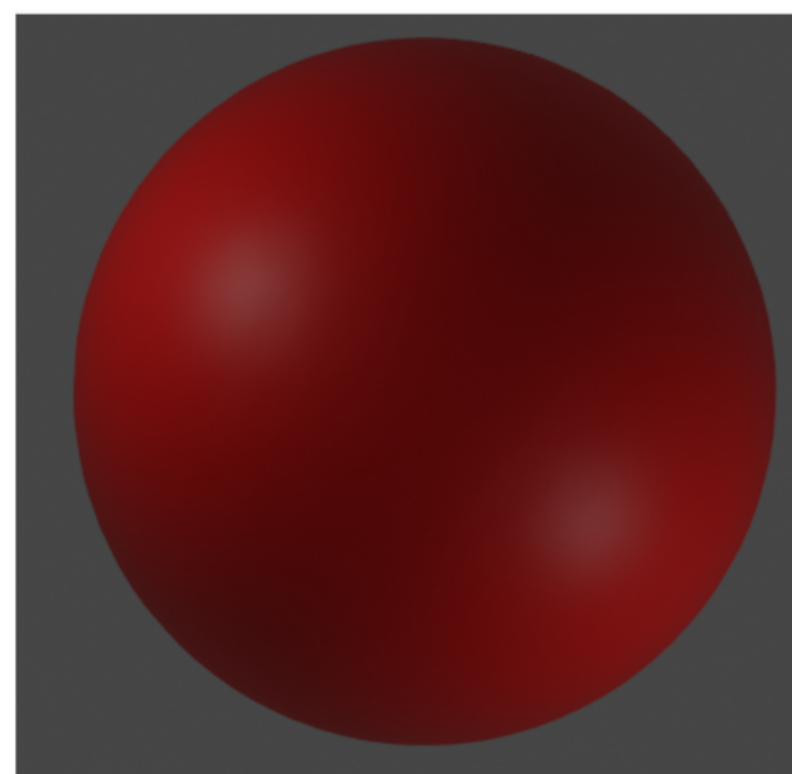
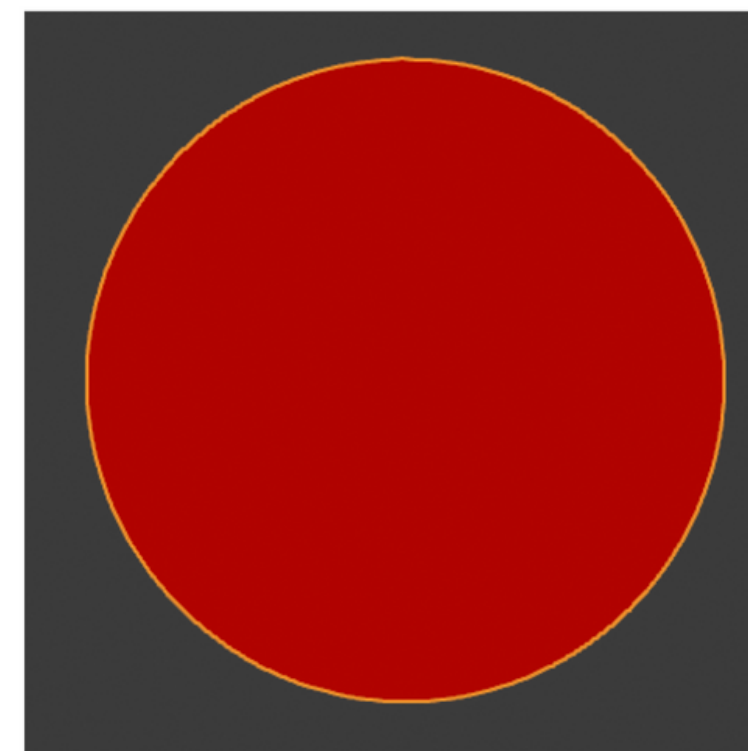
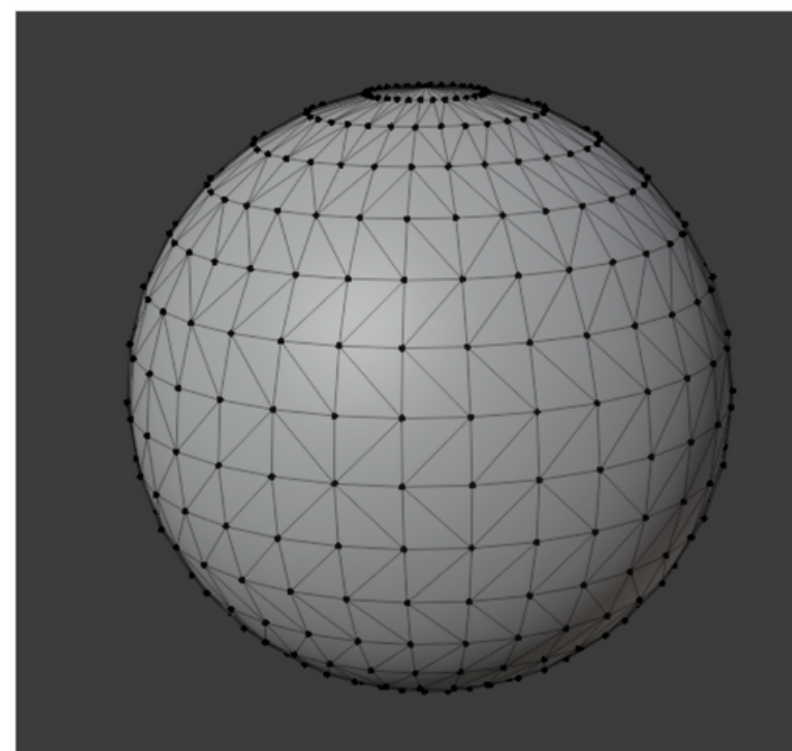
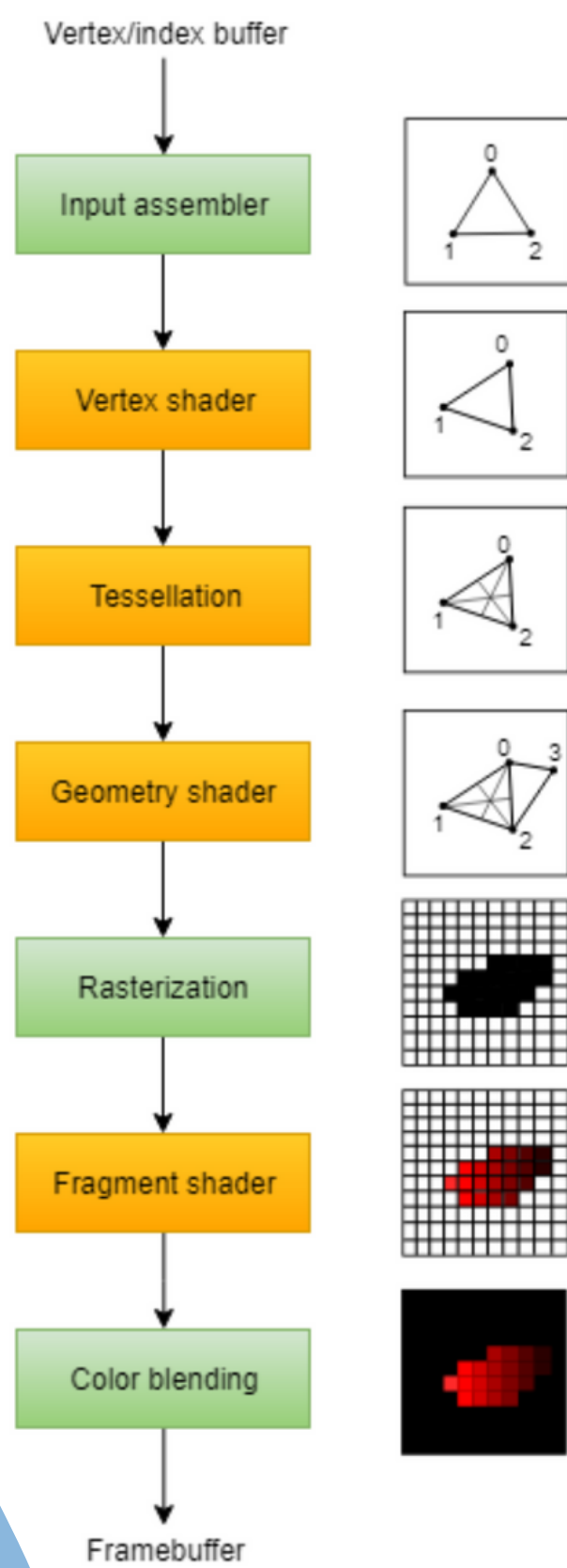


**SHADERS**

# SHADER

“A Shader is a user-defined program designed to run on some stage of a graphics processor. Shaders provide the code for certain programmable stages of the rendering pipeline. They can also be used in a slightly more limited form for general, on-GPU computation.”

En el contexto de vfx y aplicaciones en tiempo real, podemos definir un shader como un programa ejecutado en la GPU que describe en detalle cómo se dibuja un objeto en pantalla.





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