



Game Development

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PUBLIC

Agenda

Game Dev History

- Dawn of Video Games
- Video Game Market Crash
- The Rise of 3D Gaming and the Modern Age

Maths for Game Developers

- Vectors, Matrices and More

Rendering Techniques

- Rasterization, Raytracing and Raycasting

Game Engines

- What are Game Engines
- General Structure

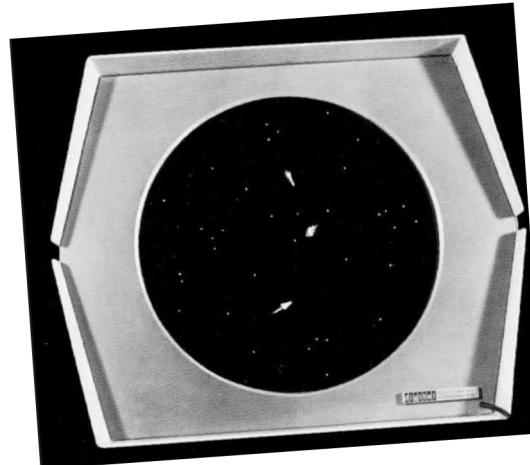
Create a Multiplayer Platformer

- Demo

Game Dev History

Dawn of Video Games

- Tennis for Two by William Higinbotham (1958)
– Was played on Oscilloscope
- Space War by Steve Russell (1962)
- Steve Baer and the "Brown Box" (1967)
- The Magnavox Odyssey (1972)
- The Atari 2600 (1977)



Video Game Crash and Console Wars

- Major “crash” due to low quality games (1983)
- Bankruptcy of a lot of video game companies
- The rise of Nintendo (1985)
 - Initially a playing card manufacturer (1889)
 - Famicom (NES)
 - Regulations for game makers
 - Popularized handheld gaming (Gameboy)
- The Console Wars (1990)
 - Sega vs Nintendo
 - Videogame Rating Council



Rise of 3D gaming and

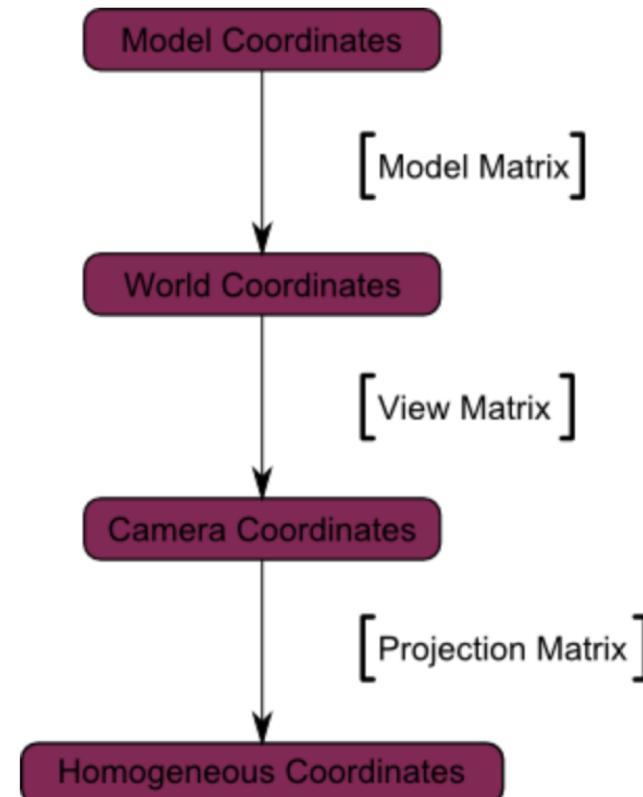
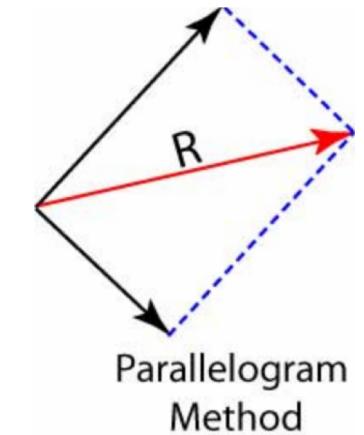
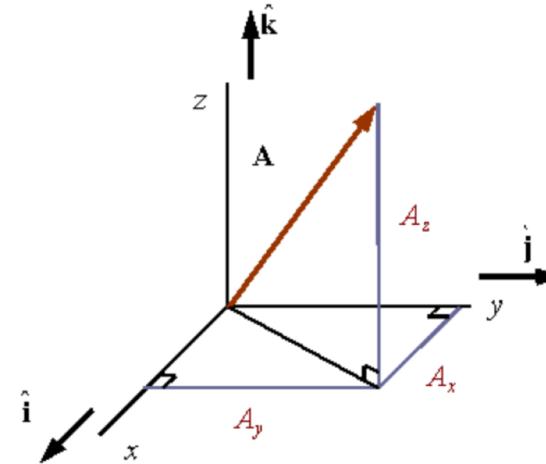
- Software Id
 - Wolfenstein 3D (1992)
 - Doom series
 - Quake series
- Playstation
 - Market Domination
- Nintendo 64
 - Zelda, Super Mario 64, Mario Kart ...
- Modern Age
 - High end PCs and Consoles
 - Triple-A (AAA) Games
 - Web and Mobile
 - Augmented and Virtual Reality



Maths ...

Maths for Game Developers

- Vectors
 - Addition
 - Subtraction
 - Scalar, dot and cross product
- Matrices
 - Addition
 - Subtraction
 - Multiplication
- Important Matrices
 - Model, View and Projection
 - Translation, Scale, Rotation



$$A = \begin{bmatrix} -5 & 1 & -3 \\ 6 & 0 & 2 \\ 2 & 6 & 1 \end{bmatrix}$$

Rendering Techniques

Rendering Techniques

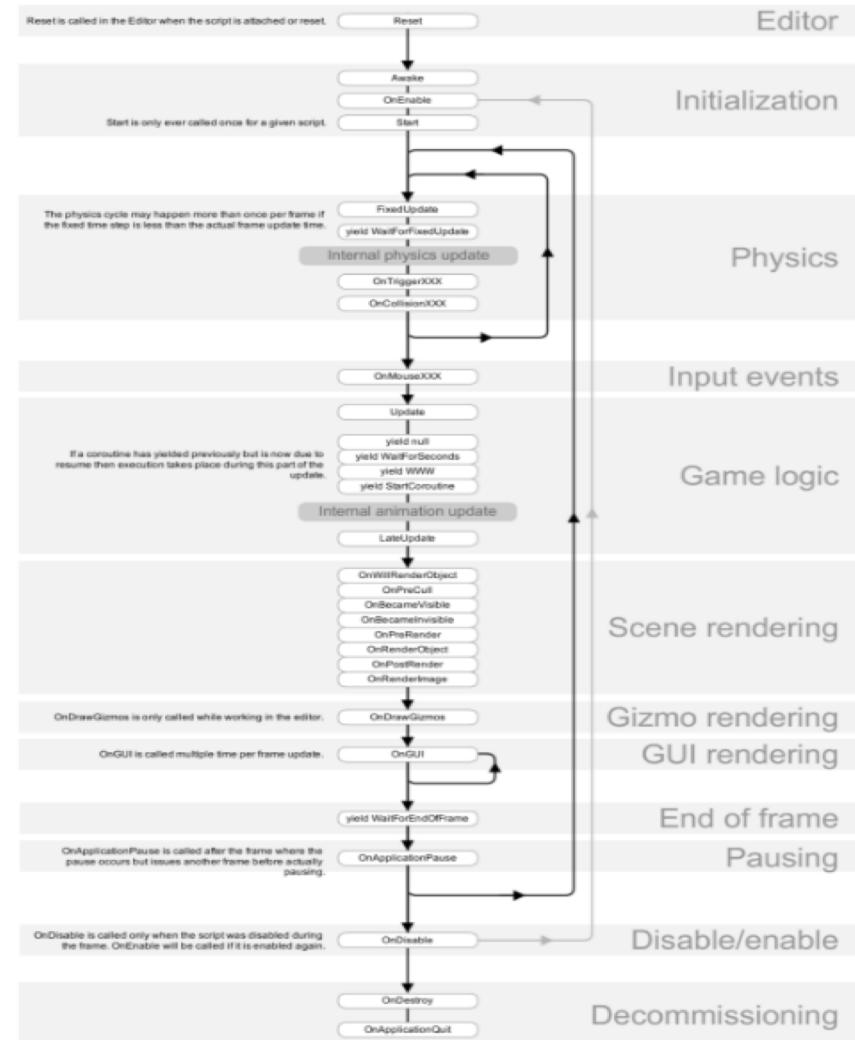
- Raycasting
 - The most basic and quick
 - Only for simple shapes
- Rasterization
 - Most commonly used currently
- Raytracing
 - The best looking
 - Under heavy development



Game Engines

Game Engines

- What do they do
- General Structure



Let's Make a Game

Create a Multiplayer Platformer in Unity

- Demo

Thank you.

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