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# Student Induction Week 2024-25

## Careers in Games

Όνομα: Μπόλιας Γιώργος

Πρόγραμμα: Προπτυχιακό

Σχολή: Computer Games Programming

# Building a Future in Games

A Journey into Game Development and Design



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# History Of Computer Games

## 1950s–1960s: The Beginnings

- **1952:** *OXO*, a simple tic-tac-toe game, was developed by A.S. Douglas as part of his Ph.D. It is one of the earliest known video games.
- **1962:** *Spacewar*, created by Steve Russell at MIT, became one of the first computer games developed for general use.

## 1970s: The Rise of Arcade Games

- **1972:** *Pong*, developed by Atari and created by Nolan Bushnell.
- **1977:** The Atari 2600 was released, bringing gaming into homes.

## 1980s: The Golden Age of Arcade and Home Gaming

- **1980:** *Pac-Man*, developed by Namco, became a cultural phenomenon and one of the most iconic arcade games in history.
- **1981:** *Donkey Kong*, a Nintendo game featuring the first appearance of Mario (known as Jump man), revolutionized platform games.
- **1983:** The video game crash occurred, largely due to market oversaturation and poor-quality games like *E.T.* for the Atari 2600. This led to a temporary decline in the video game industry.
- **1985:** Nintendo revitalized the industry with the release of the Nintendo Entertainment System (NES) and *Super Mario Bros.*, establishing the modern home console market and saving the industry.

## 1990s: The 3D Revolution

- **1991:** *Sonic the Hedgehog*, created by Sega for its Genesis console, became a huge success and positioned Sega as a major competitor to Nintendo.
- **1993:** *Doom*, developed by id Software, popularized first-person shooters (FPS) and multiplayer gaming over networks.
- **1996:** *Super Mario 64*, released for the Nintendo 64, was one of the first fully 3D platformers, showcasing the possibilities of 3D game environments.
- **1998:** *The Legend of Zelda: Ocarina of Time* pushed the boundaries of open-world and action-adventure gaming, becoming a benchmark for quality in 3D games.



# History Of Computer Games

## 2000s: Online and Console Domination

- **2001:** Microsoft entered the console market with the Xbox and introduced Halo: Combat Evolved, a groundbreaking FPS game that expanded online multiplayer gaming.
- **2004:** World of Warcraft, a massively multiplayer online role-playing game (MMORPG), dominated the gaming world, leading to millions of subscribers and a new era of online gaming.
- **2007:** Call of Duty 4: Modern Warfare redefined the FPS genre with its cinematic storytelling and robust multiplayer experience, setting new standards for the gaming industry.

## 2010s: Mobile and Indie Gaming Boom

- **2009:** *Minecraft*, created by Markus Persson, became a phenomenon, allowing players to build and explore in an open-world sandbox. It emphasized creativity and community.
- **2012:** The rise of mobile gaming was cemented by Angry Birds and Candy Crush, making games accessible to casual players around the world on smartphones.
- **2017:** Fortnite exploded in popularity with its free-to-play battle royale mode, drawing millions of players and creating a massive eSports scene.

## 2020s and Beyond: Virtual Reality and Cloud Gaming

- **Virtual Reality (VR):** Games like Half-Life: Alyx (2020) have shown the potential for VR gaming to create immersive, interactive experiences.
- **Cloud Gaming:** Services like Google Stadia and Xbox Cloud Gaming have made it possible to stream games without needing a powerful console or PC, expanding accessibility.



# But Why Games?

## My story:

Ever since I picked up my first computer at age 13, I've been fascinated by this experience and the endless possibilities that games offer. Games like solving puzzles, battle enemies, sport games and adventures. From the first contact I had the dream to create my own games. Games like Digger, Sensible Soccer, Space Invaders, Pac-man, Prince of Persia, Ghost n Goblin, FIFA Soccer, NBA live, Street Fighter, Arkanoid, Tekken, Tetris, Frog, Pang and many more. Every time it was a new incredible experience.

I love the way that games blend art, technology and storytelling to create impressive fantastic worlds. Games let players live in stories, make decisions, and shape outcomes in ways no other medium can offer. I have used a lot of console and platforms, like Commodore computer, Amiga, Nintendo, PlayStation, Xbox, Atari even flippers in shops and many more.



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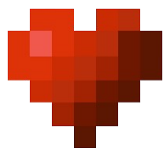
# Game Development Roles

- **Game Designer:** Creates the game's vision and structure.
- **Programmer:** Writes the code and builds the gameplay mechanics.
- **Artist:** Creates 2D/3D assets, environments, and animations.
- **Sound Designer:** Develops sound effects and music.
- **Tester:** Ensures the game runs without bugs.



# Game Development Tools

- **Unreal Engine:** Advanced 3D engine
- **Blender:** Open-source 3D modeling software.
- **Visual Studio:** Tool for developers to write, edit, debug, and manage code
- **GitHub:** Version control for collaborative development.
- **Gimp:** Open-source graphics editor used for photo retouching, image editing, and creating graphic.
- **PixelArt:** Free online pixel art tool editor for making pixel assets for games.
- **CapCut:** Free video editor.



# Essential Skills in Game Development

## Programming Proficiency

A game developer must be adept in programming languages such as C++, C#, and Python. These languages are the backbone of game development, enabling the creation of complex game mechanics and interactions.

## Game Engine Expertise

Understanding and utilizing game engines like Unity or Unreal Engine is crucial for a game developer. These platforms provide the tools necessary to build and optimize the visual and physical aspects of games.

## Mathematical Skills

Strong knowledge in mathematics, especially in linear algebra and calculus, is essential for game physics and graphics programming. These skills help a game developer to simulate realistic environments and character movements.

## Problem Solving

Game development involves tackling complex problems and bugs. A developer needs to be able to think logically and creatively to find effective solutions and ensure the game runs smoothly.

## Graphics Programming

Specialized knowledge in graphics programming is necessary to handle rendering, shading, and texturing within a game. This skill ensures that the game not only functions well but also looks visually appealing.

## Audio Programming

Integrating sound effects and music seamlessly into game environments enhances player immersion. A game developer must understand how to implement and manipulate audio elements effectively.

## Version Control

Familiarity with version control systems like Git is important for managing changes to the game project. This skill helps in tracking progress and collaborating efficiently with other team members.



# How to Start Your Career in Games

- Get a degree in game design, computer science, or art.
- Build a portfolio showcasing personal projects.
- Join game jams and hackathons.
- Network through industry events or forums.
- Apply for internships or junior roles.

## Step-by-step breakdown of the progression:

### 1. Beginner

**Learn the Basics:** As a beginner, you start with learning the core principles of game development, such as understanding game mechanics, basic programming, and design.

### 2. Novice

**Build Small Games:** After learning the basics, novices should start building small, simple games to apply what they've learned.

### 3. Intermediate

**Develop More Complex Projects:** At this stage, you begin to experiment with more sophisticated game mechanics and systems, moving towards 3D game development.

### 4. Skilled

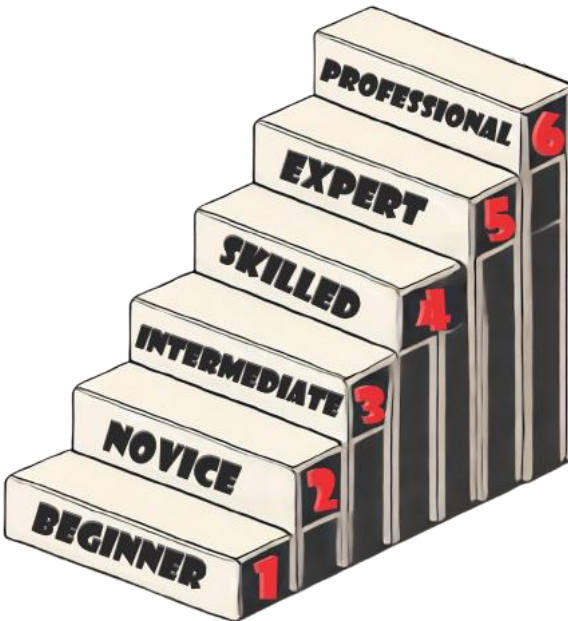
**Specialize and Collaborate:** Skilled developers usually start specializing in one or more areas of game development, such as **game design, programming, or art.**

### 5. Expert

**Create Polished Games:** Experts in game development are capable of creating polished, feature-complete games and handling complex systems.

### 6. Professional

**Work in the Industry:** At the professional stage, you are capable of working on commercial game development projects, either for studios, indie games, or freelance.



# My Game Portfolio



## PongGame

Pong is one of the earliest and simplest video games. A 2D sports game that simulates ping pong. The game features two paddles, controlled by the players, and a small ball that moves around the screen. The goal of the player is to score 3 points for winning.



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# Questions

