Manuel Silva
マヌエル・シルヴァ

manuelsilva.github.io
manuelnevesdasilva@gmail.com
www.linkedin.com/in/manuel-silva-4b225a71

EXPERIENCE

GAMEPLAY PROGRAMMER *CDProjektRed*   Dec 2020 - Dec 2023

- Contributed to various gameplay systems in Cyberpunk 2077 Phantom Liberty.
- Revamped the police system for Cyberpunk 2077.
- Developed the open-world maxtac boss encounter in Cyberpunk 2077.
- Created procedural gameplay technology for Rogue Mage.
- Developed the 3D modular character equipment systems and tooling used in Gwent.
- Worked in gameplay, VFX, animation systems and tools of Gwent.
- Contributed to the core multiplayer game logic systems of Gwent.

TOOLS PROGRAMMER *CDProjektRed*   Jun 2018 - Dec 2020

- Developed, maintained and documented majority tools in the Gwent Team projects.
- Maintained the Gwent databases that enabled it's data driven development style.
- Provided support for the in-house localization technologies.

INFORMATICS TEACHER *Médicos do Mundo*   Dec 2017 - May 2018

Was a volunteer helping to improve accessibility and knowledge of computer and technological information basics to elderly people through weekly classes.

SKILLS

- Software Development
- Game Development
- Tool Development
- Database Maintenance

- C++
- C#
- Python
- SQL

- Red Engine 4
- Unreal Engine 5

- Unity3D
- GitHub

EDUCATION

MSC. IN INFORMATION SYSTEMS AND COMPUTER ENGINEERING   2017 - Interrupted
Instituto Superior Técnico

Interrupted master studies focusing in Video Games and Computer Interaction / Visualization to pursue a professional opportunity at CDProjektRed, relevant completed courses include:

● Advanced Computer Graphics   ● Information Visualization   ● Game Design

BSC. IN INFORMATION SYSTEMS AND COMPUTER ENGINEERING   2013 - 2017
Instituto Superior Técnico

- Computer Graphics
- Linear Algebra
- Calculus I & II
- Complex Analysis

- Computer Organization
- Operating Systems
- Computation Theory
- Algorithm Analysis

PROJECTS

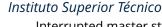**CYBERPUNK 2077 : PHANTOM LIBERTY,** *[PC][XBOX Series X][PS5]*   Jun 2022 - Dec 2023

CYBERPUNK 2077, *[PC][XBOX Series X/S][XBOX One][PS5][PS4]*   Jun 2022 - Dec 2023

Cyberpunk is an open-world first-person action RPG. I joined post-launch, around update 1.5, during the Phantom Liberty expansion development. As a gameplay programmer, I worked on the police system, boss encounters, player interactions, development tools, and code maintenance. This project deepened my skills in high-performance multithreaded C++ and RedEngine, and provided deep insights into very large scale game development .

ROGUE MAGE, *[PC][iOS][Android]*   2021 - Jun 2022

Rogue Mage is a single-player rogue-like video game that intricately weaves procedural generation and Gwent battles into the compelling narrative of Alzur, a skilled mage on a mission to create the world's first Witcher. In this project I assumed responsibility of developing several critical systems, such as the advanced map procedural generation technology and streamlined cutscene authoring tools, amongst others.

GWENT, *The Witcher Card Game [PC][XBOX One][PS4][iOS][Android]*   2018 - Jun 2022

Gwent is a multi platform CCG (Collectible Card Game). I've been working in this project since Beta, worked on all major expansions and updates to the game since its release and helped bring the game to mobile platforms. I went through several development cycles and shifts in development style as the project needs changed and matured.

THRONEBREAKER, *The Witcher Tales [PC][XBOX One][PS4][Switch]*   2018 - 2019

Thronebreaker is a SinglePlayer story driven RPG that uses the Gwent card game mechanics as a narrative device. I've started working on ThroneBreaker midway development and it was a great learning experience working on this project while simultaneously working to make Gwent leave its Beta stage.
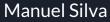
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Work Sample

Since I'm under NDA I cannot disclose any specifics on the internal technologies I developed while working at CD Projekt Red if you have any questions beyond what I mention here I'd be glad to answer in an interview as long as it does not force me to break the NDA

With that said in the following slides there is a small sample of some of the most noteworthy systems I worked on that have been released to the general public

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Work Samples

Last project I worked on was Cyberpunk 2077 and it's 30 hour AAA expansion Phantom Liberty

While it's true that Cyberpunk faced some challenges during its initial launch, it's important to recognize the tremendous efforts made to enhance the game experience post-launch

Joining the project after its release allowed me to play a significant role in optimizing both the base game and its expansions. I dedicated myself to understanding the complexities of the in-house game engine, and through innovative problem-solving, I helped bring the game closer to meeting players' expectations. It was incredibly rewarding to contribute to the ongoing improvement of such an ambitious project

To achieve this I worked in a huge variety of existing gameplay system to ensure the quality and performance bar of those features would be raised, including bug fixing, performance optimization and hardware specific implementations

Some of those systems include:

- Save and Loading systems
- Elevators and moving platforms
- NPC spawning systems
- Smart Objects systems

- Intractable Devices
- Quest Logic
- Automated Testing
- Data Processing Tooling

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Work Samples

In Phantom Liberty I had the opportunity to be part of the team working in revamping the in-game police system

The police system is a state of the art system that affects not only the expansion but also retroactively affected the base game. Creating a more immersive sandbox for the player to get lost in while playing the game

Some parts I worked for include:

- PS5 controller lights
    - Police vehicle siren lights, Imminent Explosion Lights...
    - Tools for Quest Designers to set up custom lighting patterns in cutscenes

- The Police\Barghest radio
    - dynamic radio system that gives feedback to the player on their actions

- Code architecture support
    - Wrote and refactored key areas of the several systems to help the team delivering the feature in a modular, safe and bug free manner

- The Maxtac encounter
    - Vehicle hacking loop
    - Maxtac flying AV vehicle
        - AV Physics
        - Maxtac AV animation set up
        - Maxtac AV VFX set up
        - Dynamic AV dismounting set up
    - Maxtac Combat AI
    - Crowd and Police reactions to AV and Maxtac
    - ...

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Work Samples

Developed Procedural Map Generation Technology for Rogue Mage

- Created a runtime asynchronous algorithm that generates, connects and populates procedural maps in the game.

- The system utilizes custom tools I developed, granting designers the flexibility to modify different parameters governing the generation of maps, such as shape, connectivity, and difficulty. This includes options to selectively include or exclude specific patterns

- Because the paths on the maps are procedurally generated and not predetermined, assets are positioned on the terrain through a combination of runtime shader masking, which relies on a custom rendering solution I developed, and procedural placement facilitated by artists using custom tools I supplied

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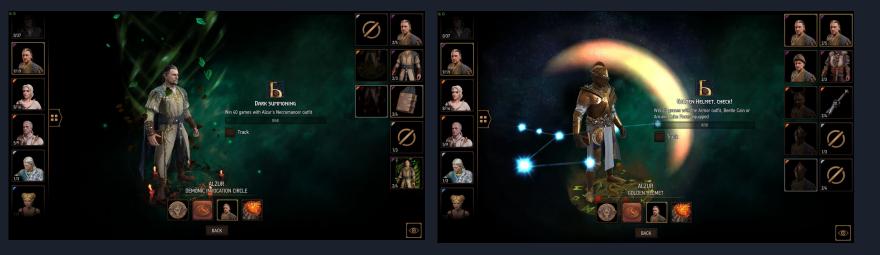www.linkedin.com/in/manuel-silva-4b225a71

Work Samples

Developed Core Technology Behind Gwent's Modular Character Equipment System

The work includes:

- Support for runtime mesh replacement while rig is animating (ideal for artists iteration process)

- Tools for artists to easily set up new modules and integrate their changes into the game

- Data driven approach that takes into account UI, Network and Database integrations

- Dynamic runtime data loading system

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Work Samples

Optimized Card Rendering Technology and the Card Creation Pipeline

Gwent is a cross platform game that targets both high end and low end devices, currently it has more than 1000 cards all of which have fully animated 3D scenes as such I've worked on a variety of systems and optimizations to ensure good performance across all devices

- Dynamic caching and pooling systems for meshes and VFXs

- Performance budget analysis and auto correction tools

- Optimized Render Texture Setups

- Custom MipMaps system to properly handle 3D card's UI in low end devices

- Maintained and improved all databases and tools systems used to version, edit and localize all data driven systems in the game

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Work Samples

Worked on Core Gameplay Systems

- Improved and extended our internal gameplay systems and internal node editor system to allow designers to create more rich gameplay experiences

- Created animation reaction system for the game boards that reacts to player inputs and game events to allow for the creation of dynamic and reactive animations without the need for programmer support

- Created dynamic VFX highlight system that improves the player UX by highlighting relevant areas of the game throughout the match

Relevant Links

Cyberpunk Phantom Liberty Review
➡ https://www.youtube.com/watch?v=ZXYn-Fn9w48
Police system in action
➡ https://youtu.be/k5v1BNxdLJ8?t=91
2.0 changes breakdown
➡ https://www.youtube.com/watch?v=5IDMLIxl4Fs
Performance breakdown
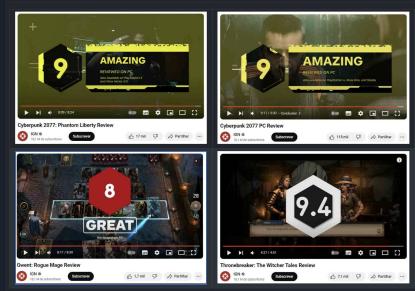➡ https://www.youtube.com/watch?v=8UTU03TooUI

Rogue Mage Review
➡ https://www.youtube.com/watch?v=4EynbB0MKmY
Thronebreaker Review
➡ https://www.youtube.com/watch?v=wHYFitGGmmI
Gwent Showcase
➡ https://www.youtube.com/watch?v=QE6V8NgKLEQ

Feel free to contact me at
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