



Evolution of racing video games

UWTSD

About me

I'm Phoenix Webb

I like video games (sports, racing, action)

I have a great interest in 3D modeling, specifically in the hard surface specialization

What do I want to do?

- I want to conduct research on the development of racing video games, focusing on simulators like Gran Turismo and Assetto Corsa
- And also focusing on Formula 1 and GT Racing in both the research and practical work



Objectives

- Research the origins of car racing and its impact on society
- Research about Formula 1 and GT Racing
- Research the beginnings of racing video games and their evolution



Car racing

Car racing began in the late 19th century with events like the "Paris-Rouen" in 1894. Over time, it evolved into iconic competitions such as the 24 Hours of Le Mans and professional series like Formula 1, influencing the development and popularity of motorsports.

It has significantly influenced society through entertainment, technological innovation, and economic development. Moreover, it has left a notable impact on cinema, inspiring films and solidifying the culture of speed.



Formula 1

Formula 1 is the premier category in high-speed motorsports. Initiated in 1950, it is characterized by races featuring highly specialized single-seater cars

It stands out for its speed, advanced technology, and global competition on iconic circuits like Monaco and Monza

The strategy involves tactical decisions on pit stops, tire selection, and adapting to track conditions to maximize performance and chances of winning during a race



GT Racing

It is a category of high-speed motorsports that focuses on Gran Turismo cars, road vehicles modified to compete on racing circuits

It dates back to the 1920s and 1930s when grand touring races began gaining popularity. However, the formalization of the category and its significant expansion occurred later, particularly in the 1970s with the creation of specific championships for grand touring cars

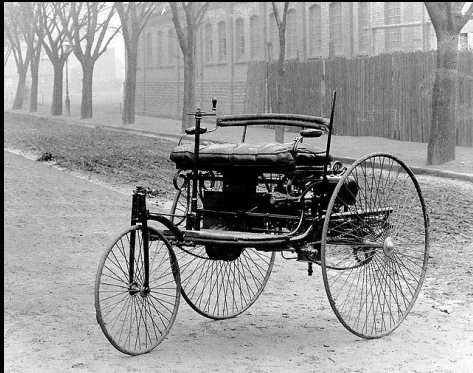


Cars history

The history of cars dates back to the 19th century, from the first steam-powered vehicles to the invention of the internal combustion engine

The evolution has been driven by technological advances and changes in design. From the early vehicles to the modern era, significant progress has been made in terms of aerodynamics, fuel efficiency, safety, and embedded technology

Lighter materials, more powerful engines, and advanced electronic systems have contributed to enhancing performance and the driving experience



Car racing Video games

Racing video games started to provide thrilling and competitive experiences in the virtual world, tapping into the interest in cars and speed

They had started in the 1970s and 1980s with titles like 'Gran Trak 10' and 'Pole Position,' marking the beginning of the genre

In the 1990s, "Mario Kart" introduced fantasy elements, and simulation improved with "Gran Turismo." Currently, games like "Forza Horizon" and "Assetto Corsa" offer realistic and visually stunning experiences, while "Need for Speed" remains popular for its arcade-style approach.



Gran Turismo



Gran Turismo" is an influential racing simulation franchise released in 1997 for PlayStation. It stood out for its realism and variety of cars, becoming one of the most successful series in the genre

I aim to focus my research on this video game or similar titles, as they closely emulate the reality of GT racing and Formula 1, incorporating realistic physics and graphics

It also serves as a significant reference for the practical aspect of the project, which I will explain next



Practical work

The practical part of my independent project will be a 3D environment of an indoor racing garage, which can be specific to either Formula 1 or GT Racing

What I enjoy the most is hard surface 3D modeling, and my challenge will be to complete the entire pipeline of creating an environment

I will have to use different software for modeling, UV mapping, texturing, lighting, and rendering

The software I will be using includes Maya, Substance Painter, and Unreal Engine

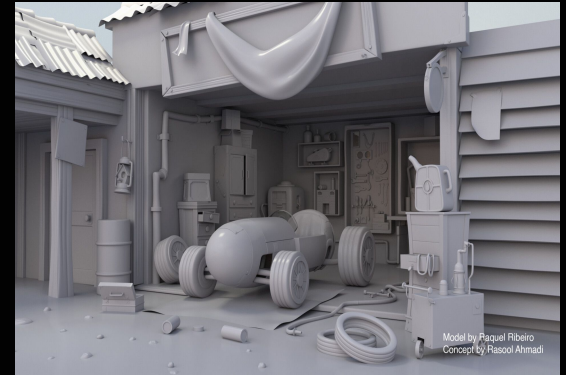


3D Environment

- What is?

A "3D environment" in a video game is the three-dimensional setting where the game's action takes place. It encompasses landscapes, interiors, and elements that shape the game's atmosphere. Creation involves modeling, texturing, and lighting for an immersive experience

- References:



What I need to know?

To achieve a realistic cars racing garage, I need to research about:

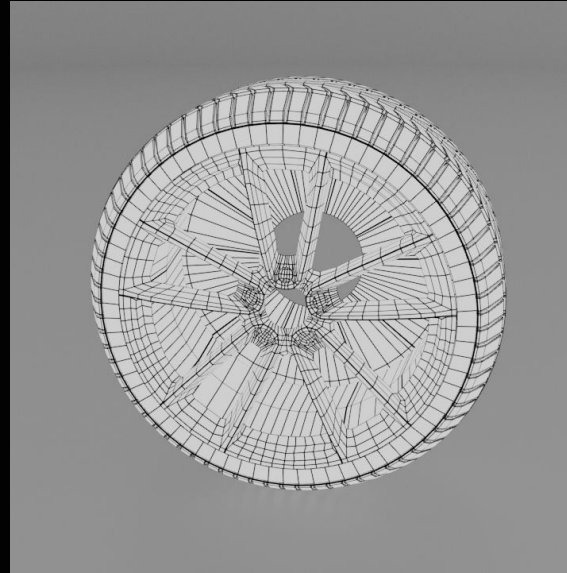
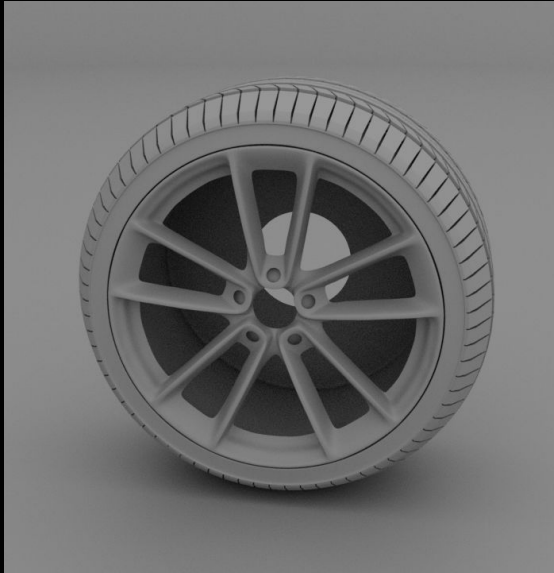
- Sports Garage Design
- Vehicles and Equipment
- Architecture and Structures
- Textures and Materials
- Lighting and Ambiance
- Racing Aesthetics

Work completed to date

I have started defining an index for the research, although I still want to refine it further with the help of the supervisor.

Also I have started writing about the evolution of automobiles since it forms the basis for the existence of races and video games that simulate racing

In the practical part, I've modeled a sports wheel and tires following an On Mars 3D tutorial. It's a very generalist wheel for a GT Racing Porsche, so I can use it as one of the wheels in the garage.



Problems and solutions

- Difficulty in finding precise information on what I'm looking for:
I am using Google Scholar to gather academic information, but I will also need to use journals, websites, and other sources
- No Unreal Engine experience:
I need to watch tutorials on the workflow in Unreal Engine, such as importing textures, lighting, and other aspects
- To avoid issues like lack of time or poor organization, I'm going to create a Gantt Chart
- I don't have experience in writing British academic papers and referencing in the IEEE style.

Next steps

Continue researching and writing about the topics outlined in my index, and address errors in writing based on feedback.

- Beginnings of automobile racing
- History of Formula 1 and GT Racing (sports car racing)
- History of racing simulator video games
- The impact of Gran Turismo for racing simulators
- Exploring the Evolution of Online Gameplay Modes: Investigating how the experience of online multiplayer gameplay in racing games has changed and how online competition has developed
- Evolution of garages in Formula 1 (has to do with practical work)
- From the origins of the genre to the development of 'Kart racers' and more refined simulations such as Gran Turismo

In the practical part, I need to narrow down options and have a more precise idea to make further progress.

I will start modeling the garage assets with Maya

I have created a Gantt chart to visually track the next steps

Gantt Chart

