

# Lumina

*Game Design Document (GDD)*

## 1. Quick Summary

**Lumina is a 2D top down fast paced objective based PvPvE game.** Players in a team of 3 will be tasked to control a spaceship to fight mobs, collect motes, and gain dominance over the opposing team in a fully procedurally-generated world. This game blends the idea from *Destiny 2's Gambit* game mode and fast paced top down games like *Astro Duel 2*, *Intravenous 2*, and *Ruiner*.

### 1.1. Game Inspirations



Figure 1: Destiny 2 gambit mode



Figure 2: Astro Duel 2



Figure 3: Ruiner

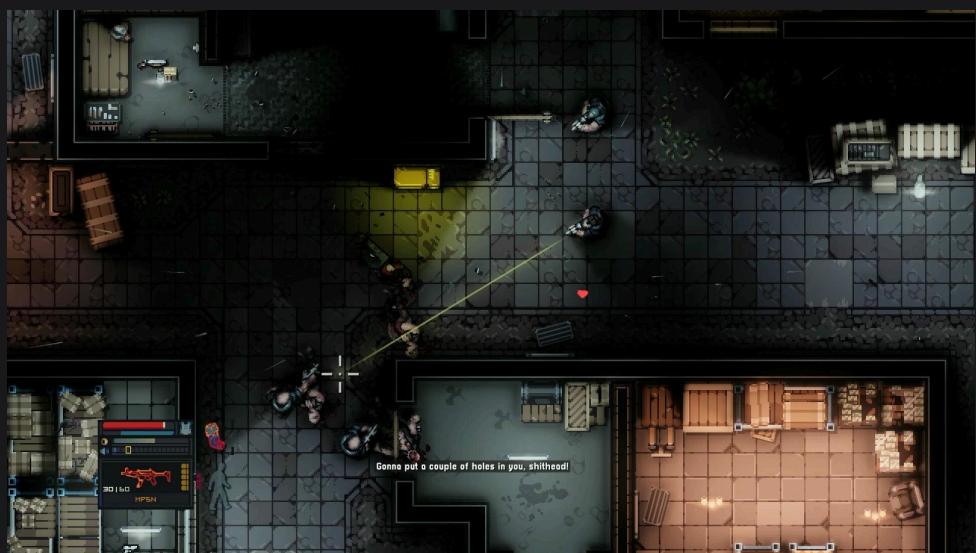


Figure 4: Intravenous 2



Figure 5: Ape Out

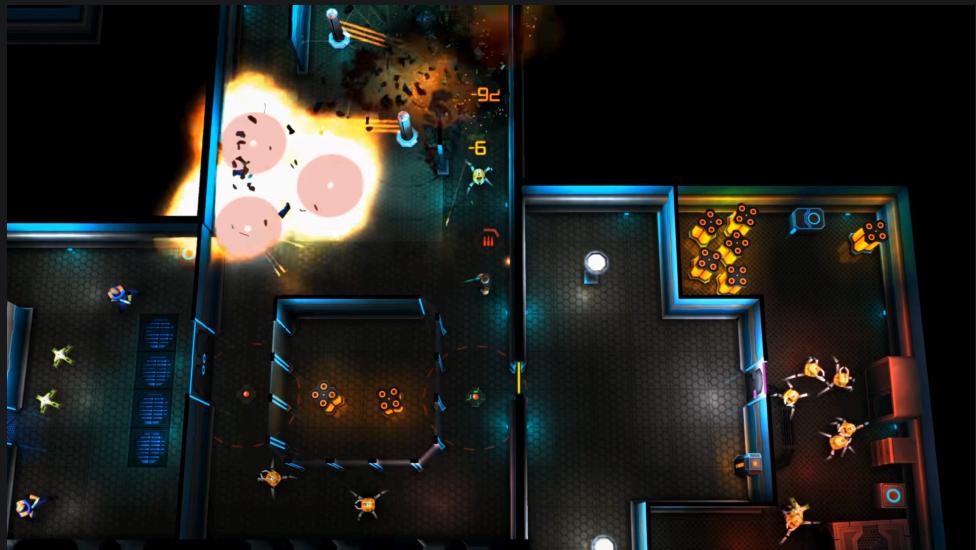


Figure 6: *Neon Chrome*

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## 2. Design Pillars

We use design pillars to focus design choices as we move through the project.

*Types of fun or enjoyment* which are key to the user experience:

Competition	Power
<i>An activity where the goal is to show one's superiority.</i>	<i>Capacity of having a strong effect, of acting with strength.</i>
Players will feel the urge to gain an advantage over their opponents. They must compete with each other on limited resources and avoid death penalties.	As players gain more <b>Lumina</b> , they can use it to their advantage by combo depositing to receive temporary buffs or purchasing better weapons.

## 3. Audience & Market

This game will target gamers who loves fast paced multipalyer games like *Apex Legends* and *Astro Duel 2*. It will particularly appeal to gamers who love the mix of competitive PvP and PvE like *Destiny 2's Gambit* game mode and *World War Z*.

Platform	PC Native (Windows/Mac/Linux)
Genre	2D, Co-op, PvP, PvE, Top-down

## 4. Core Gameplay

This is the core gameplay loop and mechanics that the game will have. Each mechanic should positively impact the player experience towards our design pillars.

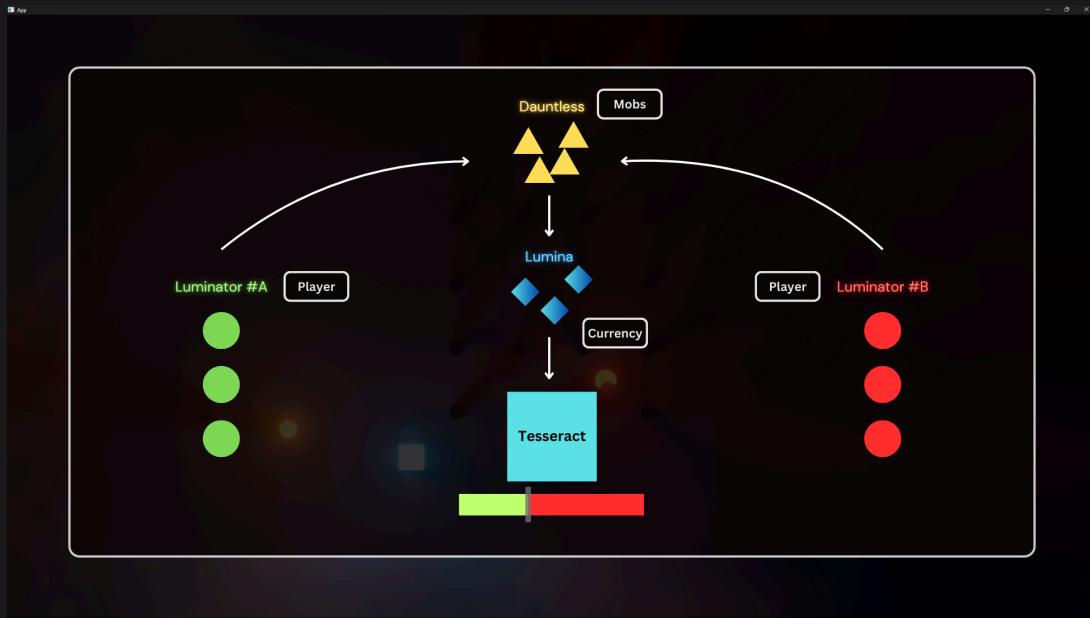


Figure 7: Game Loop

As a player, your goal is to gain dominance of the **Tesseract**. This is achieved by moving the effect meter towards the opposite side.

### 4.1. Game Loop

1. Start the game with a team of 3.
2. Eliminate **Dauntless** (mobs) to obtain **Lumina** (currency).
3. Players can use **Lumina** to:
  - Feed it into the **Tesseract** (depositor) to **increase** your team's dominance.  
*or...*
  - **Purchase** better equipments (weapons for this prototype) from the shop.
4. Team with **total dominance** **win!**
5. If timer runs out (approx. 15mins) and no team manages to gain total dominance, the team with **most dominance** wins (this is subject to change into something like a sudden death post prototype phase).

### 4.2. Game Mechanics

#### Controls

Control	PC	Console
Move	WASD	Left Stick
Brake	Space	L
Boost	Right Mouse	L2
Interact	E	South
Attack	Left Mouse	R2
Aim	Mouse Cursor	Right Stick

## Player

<b>Spaceship</b>	<ul style="list-style-type: none"> <li>Physics simulated.</li> <li>Thrusters only pushes spaceships from behind.</li> <li>Direction controlled by <i>Move</i> controls.</li> </ul>								
<b>Weapon</b>	<ul style="list-style-type: none"> <li>Direction of weapon will snap to <i>Aim</i> controls.</li> <li>Apart from the default weapon, each weapon when purchased will have a limited amount of ammos.</li> <li>All weapons will have a magazine size (reload to replenish).</li> <li>Weapons can be used to attack mobs and opponents.</li> </ul>								
	<table border="1"> <thead> <tr> <th>Weapon</th><th>Characteristics</th></tr> </thead> <tbody> <tr> <td>Cannon (default)</td><td>moderate firing rate, moderate damage</td></tr> <tr> <td>Gattling gun</td><td>high firing rate, large mag</td></tr> <tr> <td>Missle</td><td>slow firing rate, area damage, no honing</td></tr> </tbody> </table>	Weapon	Characteristics	Cannon (default)	moderate firing rate, moderate damage	Gattling gun	high firing rate, large mag	Missle	slow firing rate, area damage, no honing
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Gattling gun	high firing rate, large mag								
Missle	slow firing rate, area damage, no honing								
	<i>Types of weapon, non-exhaustive, but good amount for the prototype.</i>								

## Death

When players get eliminated by **mobs / opponents**:

- Get a **death penalty** (This includes dropping all your **Lumina**, a time delay before respawn, and dropping your purchased weapon).
- Respawn at spawn location with a 5 secs immunity.

## Combo Deposition

The combo deposition is meant to reward players who takes risks to gather large amount of **Lumina** and deposit them in one go. (+ive feedback loop)

Risk	Reward
10 Lumina	30 seconds of alternate dimension time.
20 Lumina	40 seconds of alternate dimension time + 5 Lumina chain reaction.
30 Lumina	60 seconds of alternate dimension time + 7 Lumina chain reaction.

*Alternate dimension is when players are given the ability to see enemies as light instead of darkness. (See Section 4.2.5)*

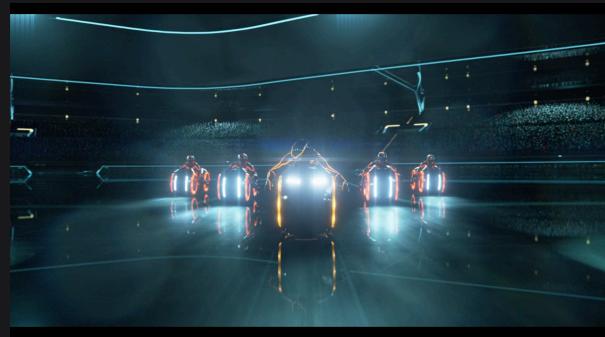
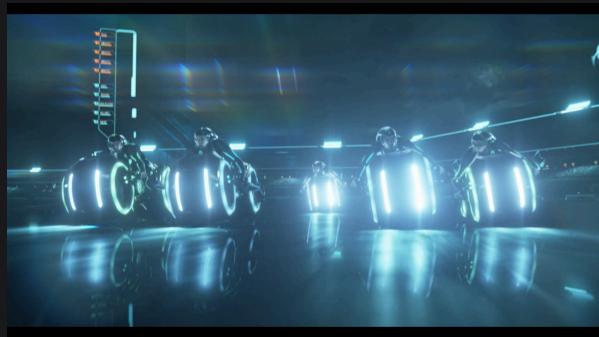
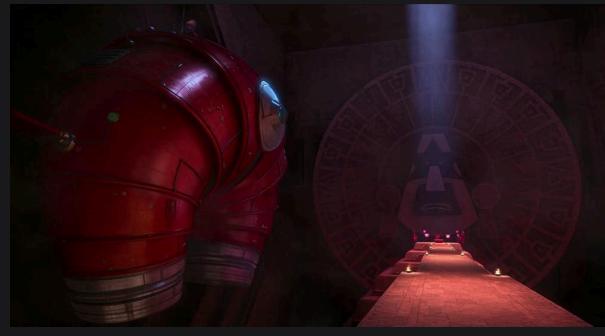
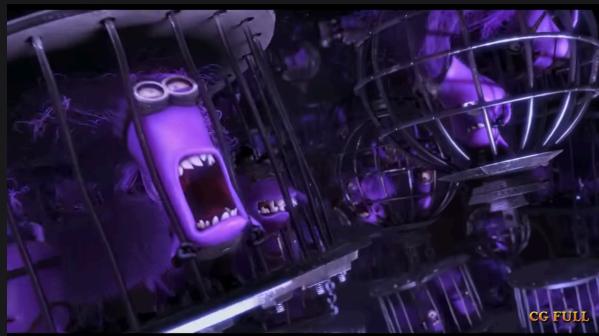
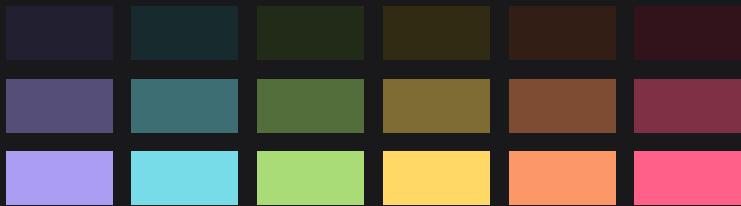
### ***Environment (Light vs Dark)***



Figure 8: Light vs Dark

The default environment background will be completely dark. **Ally** spaceships will help **illuminate** the scene while **enemy** spaceships will **consume** light. Some important props around the world will also illuminate the scene (e.g. **Tesseract**, **Lumina**). While the other normal props and obstacles will just block lights.

## 5. Visual Style & Aesthetics



## 5.1. Environment Design

The environment design should be based on the void. The void is the remains of a past civilization or intelligent being that was destroyed by **Dauntless** who thrives on **Lumina**.

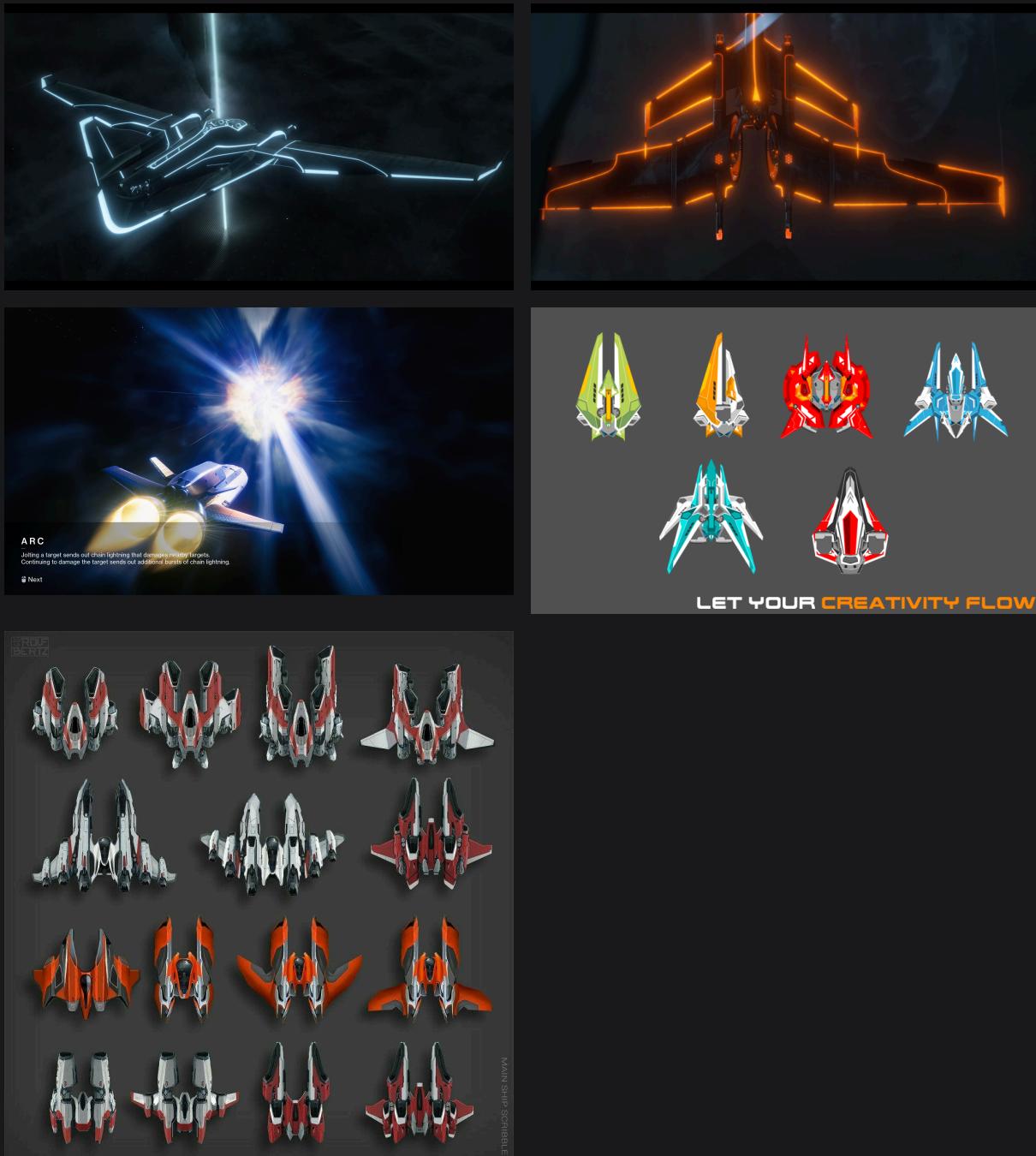


It will contain:

- Dark space with structures floating around.
- Destroyable small metal structures detached from the main boundary.
- Portal for teleporting.

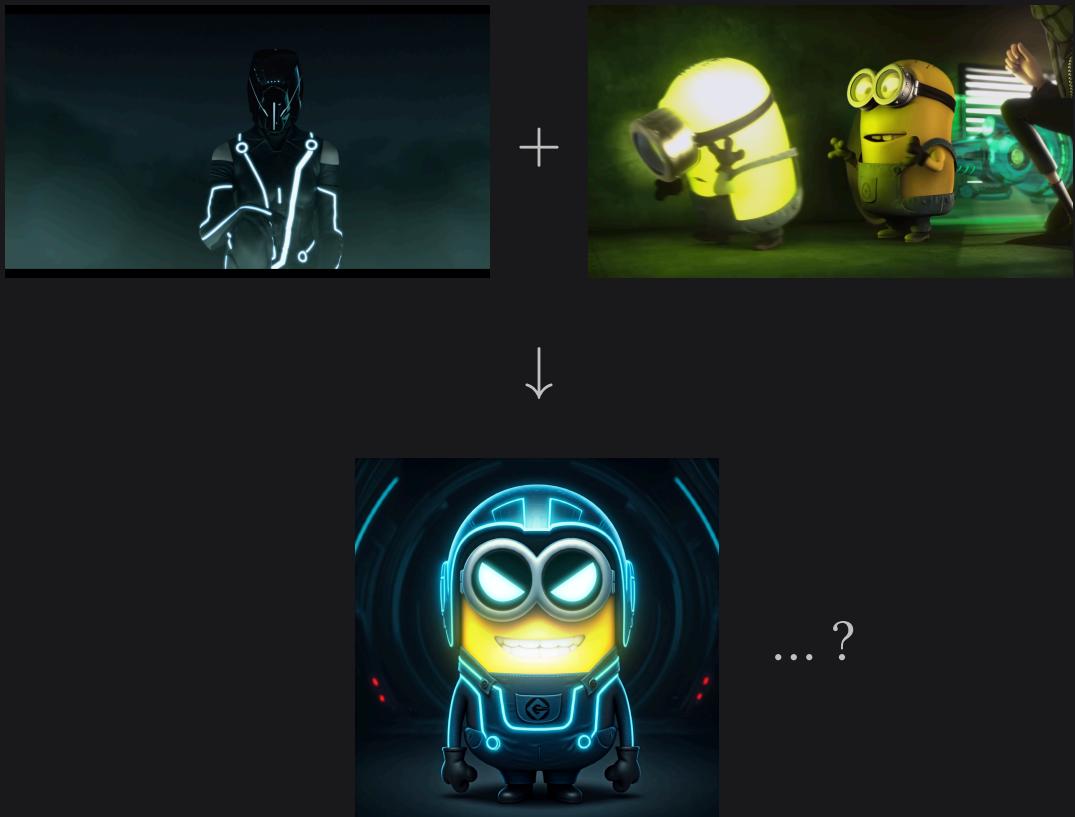
## 5.2. Spaceship Design

Aim for futuristic, modern, and clean design. Spaceships will be view from the above (top down), and it won't be filling much screen space. Make it simple and easy to recognize without too much details.



### 5.3. Character Design

Characters are aimed to represent the form of a light bulb / luminance source. The idea is to merge the art aesthetic of *Tron* like feel into the mischievous, playful world of *minions*.



## 6. Setting

Set on **Luminara**, a planet that is currently in the middle of an energy crisis war. The inhabitants of the planet (*Luminites* and *Luminids*) ventures into the void to fight for resources (**Lumina**).

<b>Luminites</b>	Luminarian who wants to exploit <b>Lumina</b> in hope of a technology breakthrough which will make them independant of <b>Lumina</b> .
<b>Luminids</b>	Luminarian who wants to conserve <b>Lumina</b> and save the planet (they think the technology breakthrough is infeasible).

### 6.1. Tone

The world of **Luminara** strikes a balance between whimsical and serious, blending playful mischief with an undertone of cunning ambition. While the characters, *Luminites* and *Luminids*, have a lighthearted, almost impish charm, their actions are driven by a calculated desire to outwit and outperform each other. This creates an atmosphere reminiscent of “*Despicable Me*”, filled with sly humor and mischievous antics, but layered with stakes that emphasize clever strategies and resourceful thinking.

### 6.2. Character Traits & Motivations

Even though the *Luminites* and *Luminids* are in a war, they were actually once the same species, living in harmony. Not all *Luminites* and *Luminids* harbor genuine hatred for one another, many are driven to battle by the ambitions and orders of their leaders and politicians.. This struggle mirrors our own world, where chaos and conflict are often incited by those in power. The never-ending war rages on, even as their home planet, **Luminara**, cries out in agony...

## 7. Misc

- Tech Stack:

Type	Solution
Game Engine	Bevy
Level design	Blender + Blenvy
Vector graphics	Velyst (Vello + Typst)
Multiplayer	Lightyear