Aetheria

Practical Course AI
Markus Gumbart, Jonas Goos, Nina Cordes
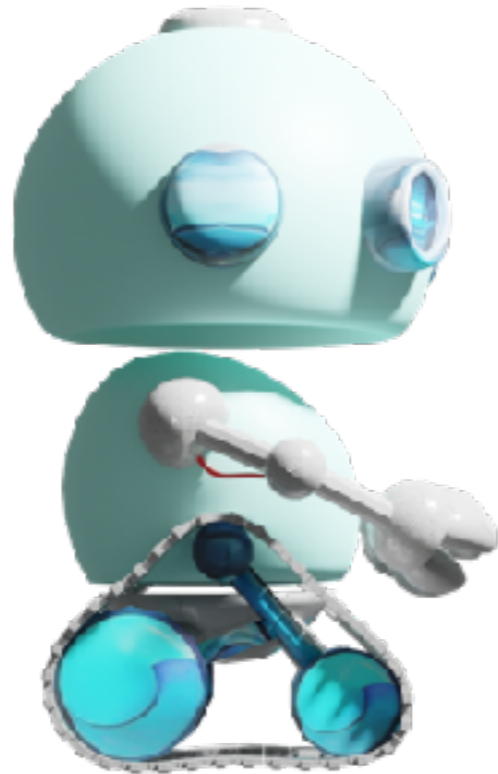Technische Universität München
12. Oktober 2023
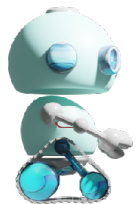
Game Concept
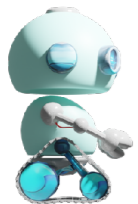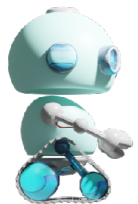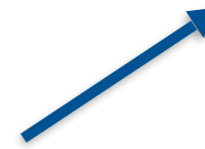
The Characters

Timelines

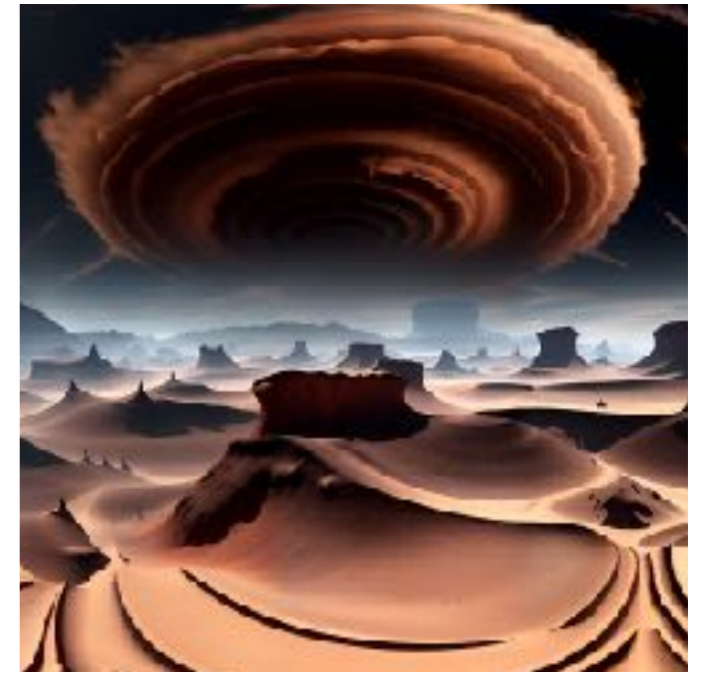# Timelines

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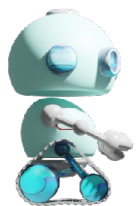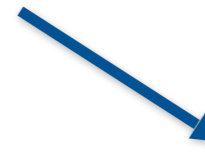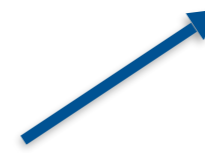
Objective
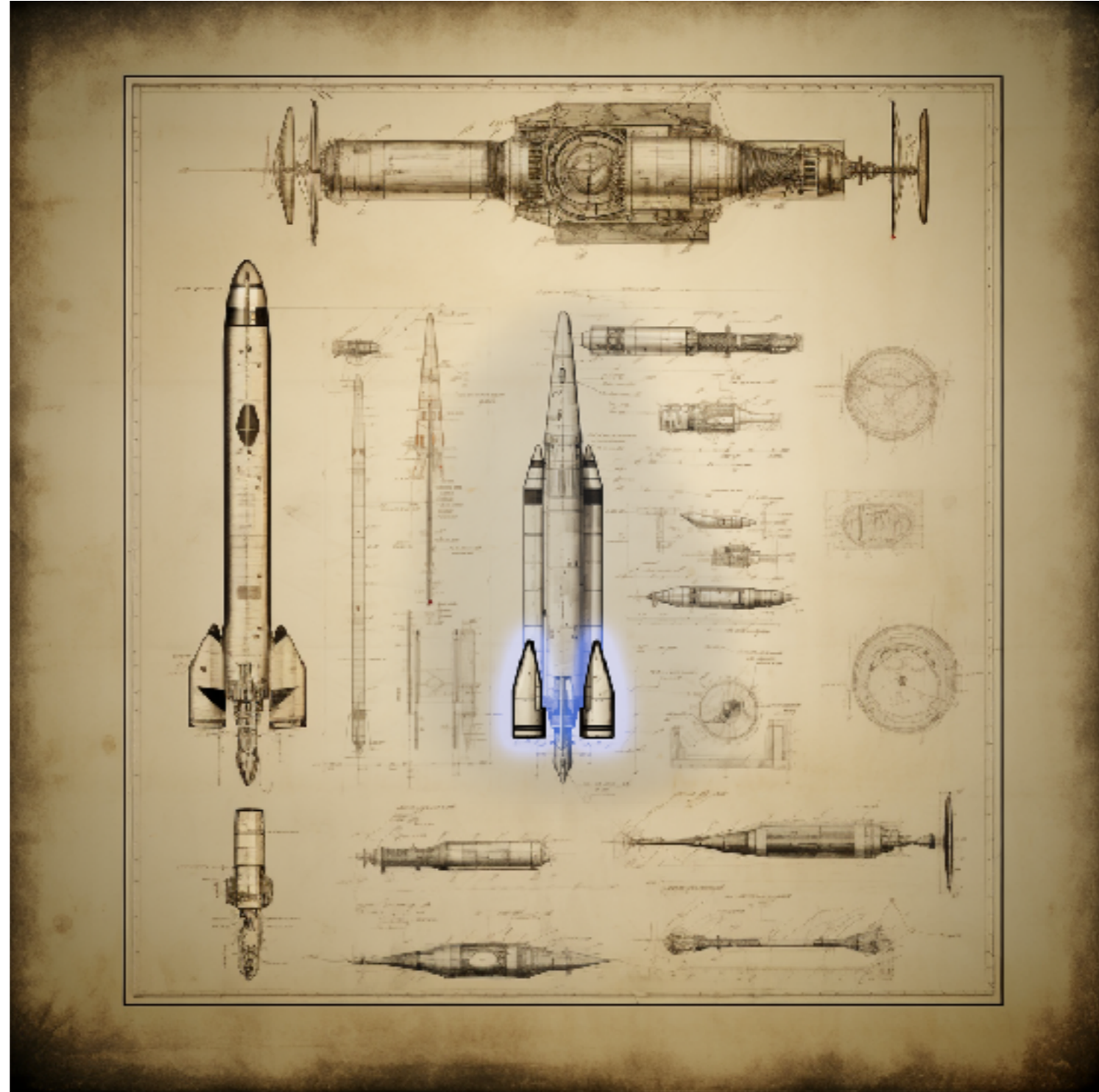
Trailer

Game Mechanics: Collect and mine resources

Game Mechanics: Building a workbench

Game Mechanics: Crafting

Game Mechanics: Time Travel

Iterative Process

Initial plans with AI

- First Idea: 3D world/objects generated from prompt
  - DreamFusion
  - Spline AI

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$\Rightarrow$ Technology not there yet

$\Rightarrow$ Static map with generated assets

Clues

- Rocks were not distinguishable
- Add particle effect in different colors
- Improvement: Decorative rocks and mineable rocks
- Flaw: Difference of color not recognized by all
- Idea for the future: Add particle effect only to currently mineable rocks

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Development

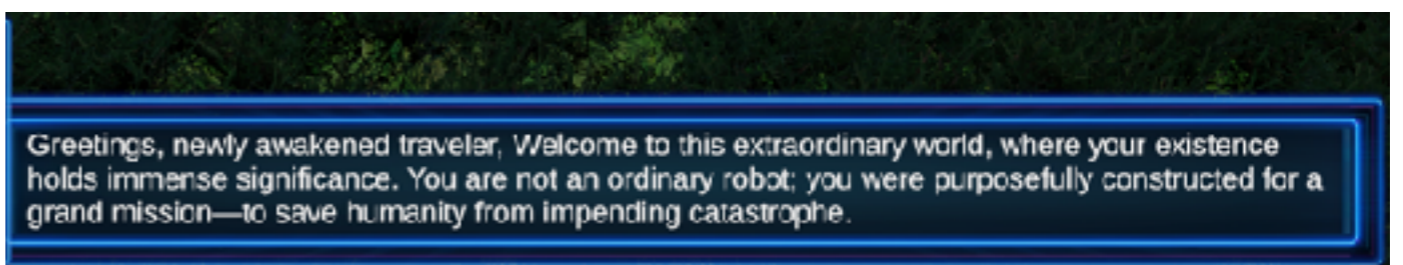# Usage of AI

Texturing
Dream Textures

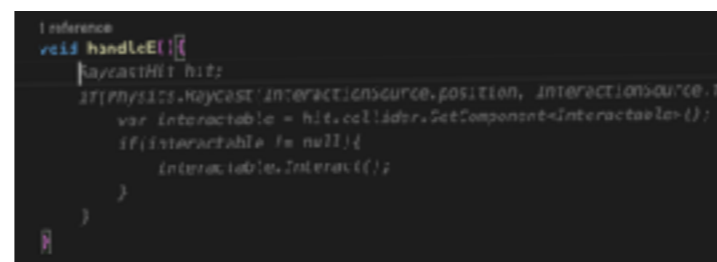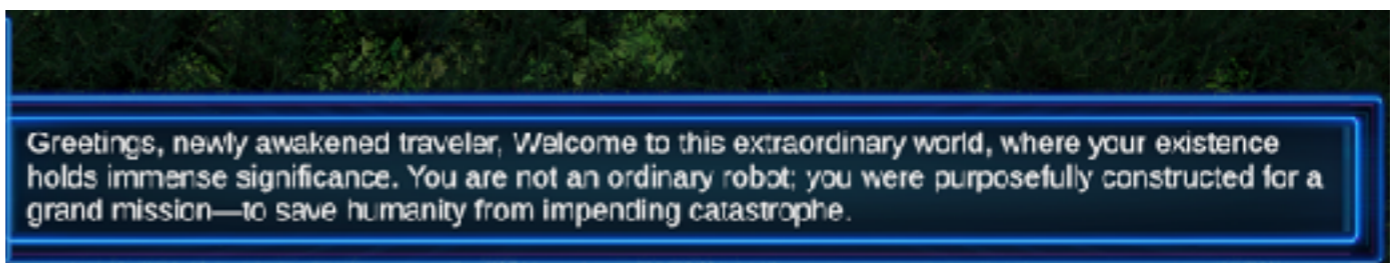**UI icons**
Midjourney

Skyboxes
Blockade labs

Environment textures
Poly

Texts
ChatGPT

Code
GitHub CoPilot

Greetings, newly awakened traveler, Welcome to this extraordinary world, where your existence holds immense significance. You are not an ordinary robot; you were purposefully constructed for a grand mission—to save humanity from impending catastrophe.

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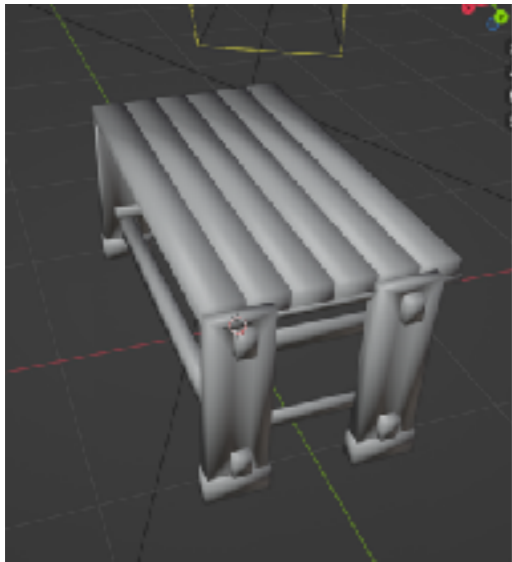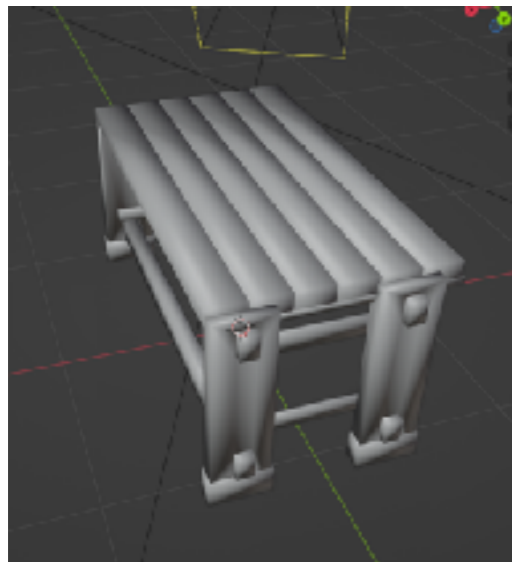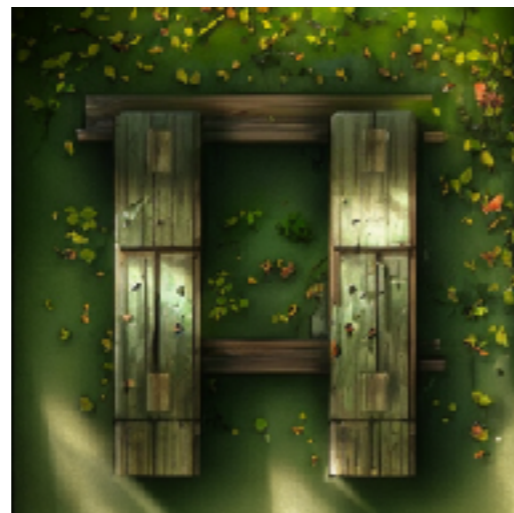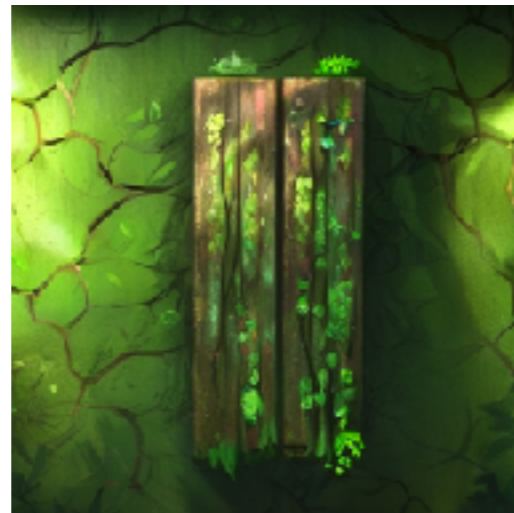### Code
GitHub CoPilot

Usage of AI: Texturing

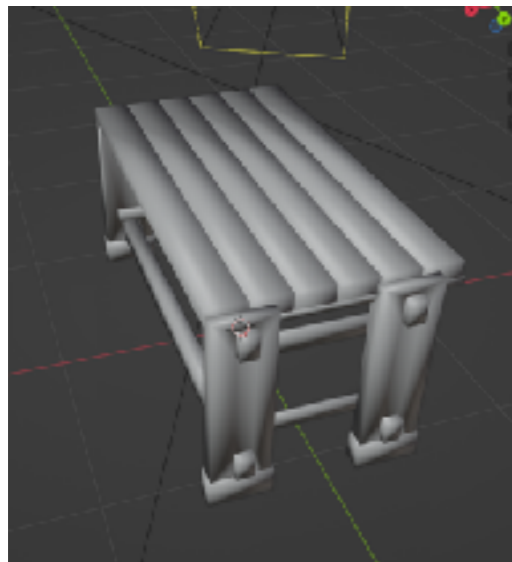Untextured model

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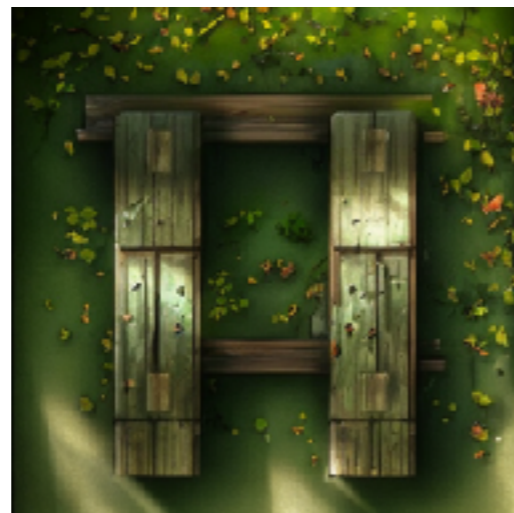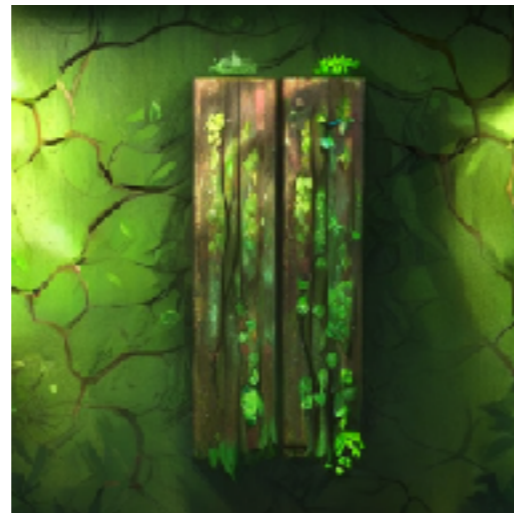

Untextured model

Generate textures from
different angles

Usage of AI: Texturing

Untextured model

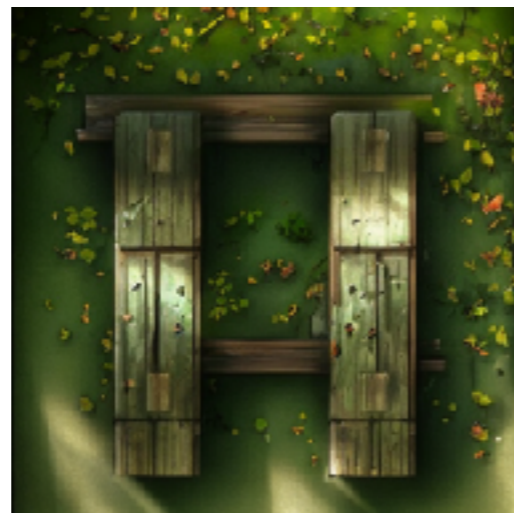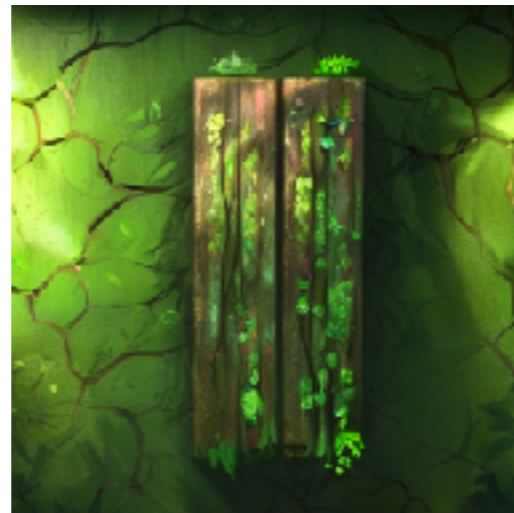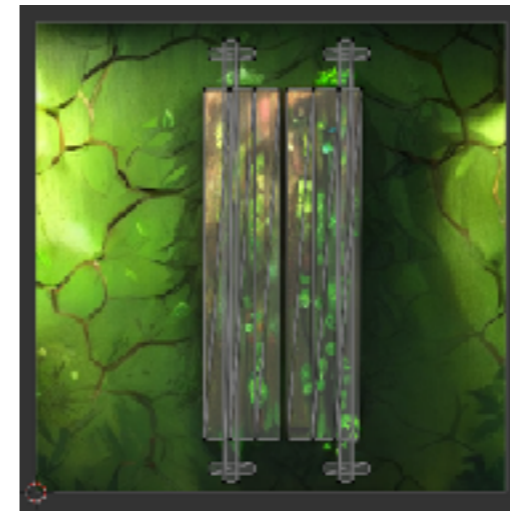Generate textures from different angles

UV Mapping

Usage of AI: Texturing

Untextured model

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UV Mapping

Final result

Usage of AI: Pros and Cons

Pros

- Very good for prototyping
- Faster than manual work
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Cons

- Hard to keep consistent style
- Sometimes still very time-consuming
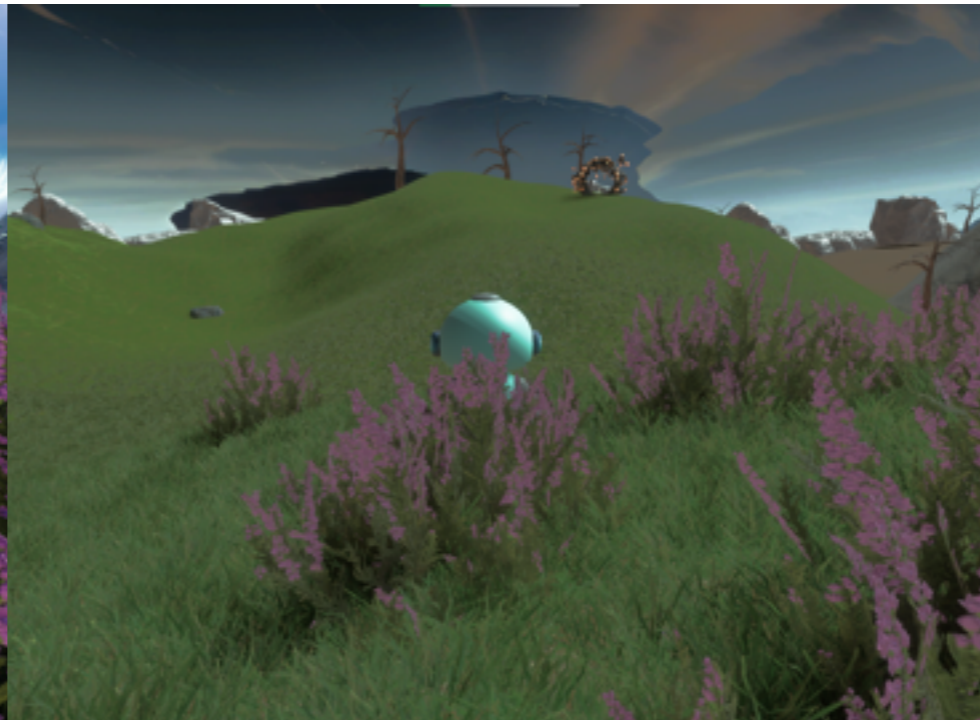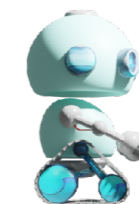- Needs strong supervision and guidance

Different Timelines

4 different worlds ⇒ avoid doing 4 times work
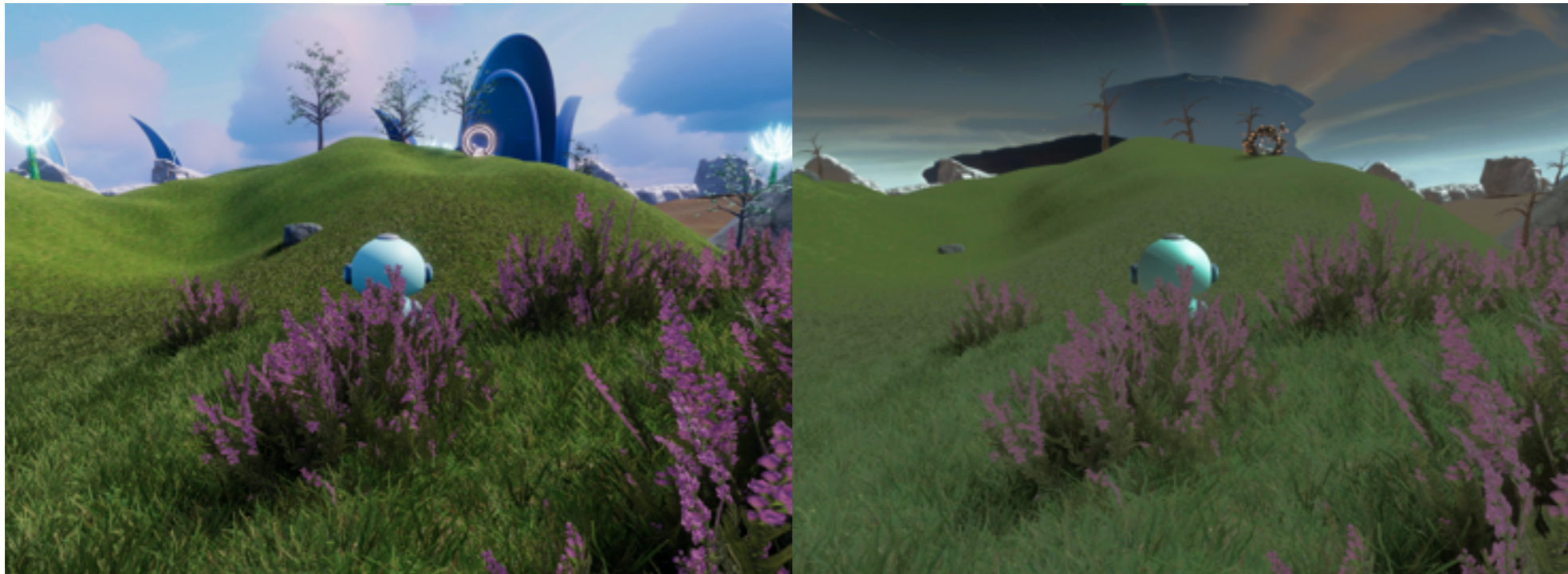

Utopia   Dystopia

Different Timelines

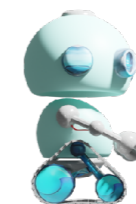4 different worlds ⇒ avoid doing 4 times work

Solution

1. Create prototype version of map
2. Create different variations of trees, rocks, etc.
3. Subscribe to time change event and change out objects
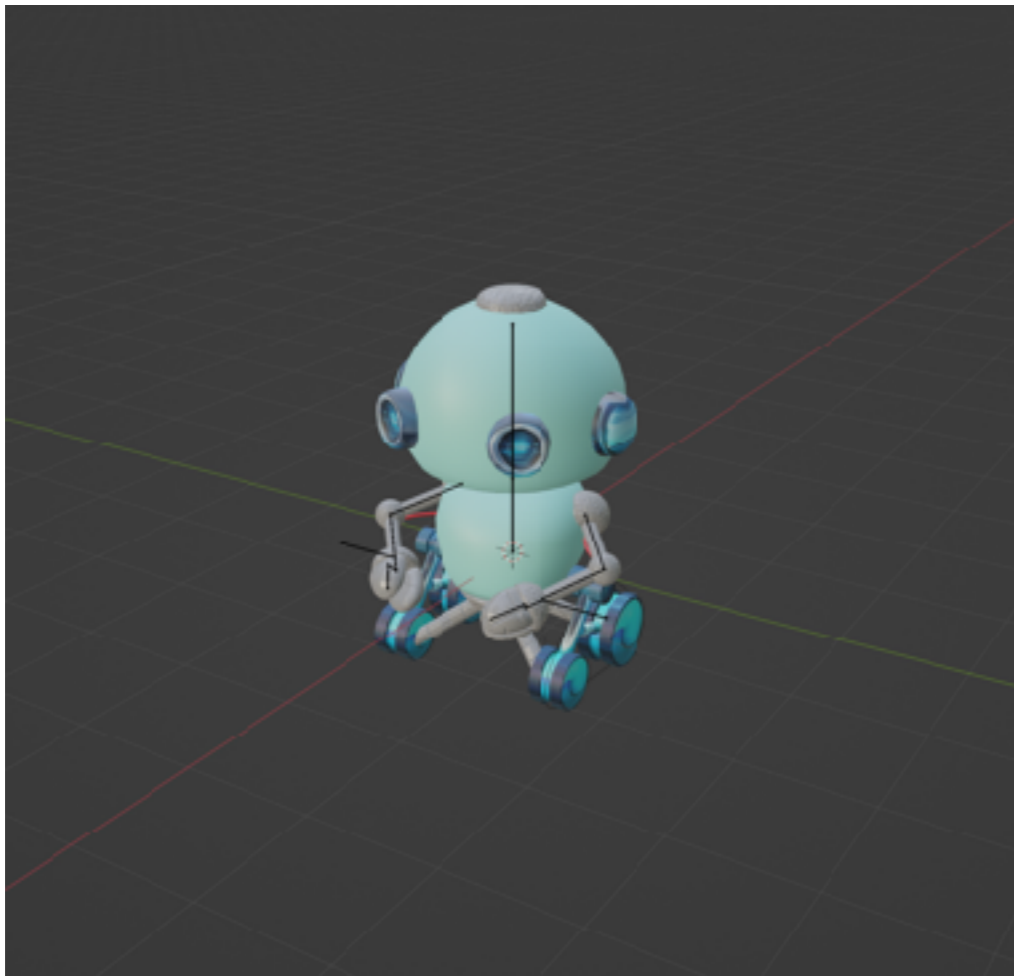4. Apply different skyboxes and post-processing effects

Utopia   Dystopia

Character

- Character and animations made in blender
- Inspired by Midjourney

Lower body adjustment

- 4 raycasts on the top-down corners of the robot downwards in each frame
- Compute normals
- Ignore collision outside threshold distance
- Adjust lower body to computed normal
- Straighten lower body on jump and readjust to ground on landing

Camera adjustment

- Camera tries to keep character in direct line of sight
- Cast ray towards camera
- Move camera to collision position
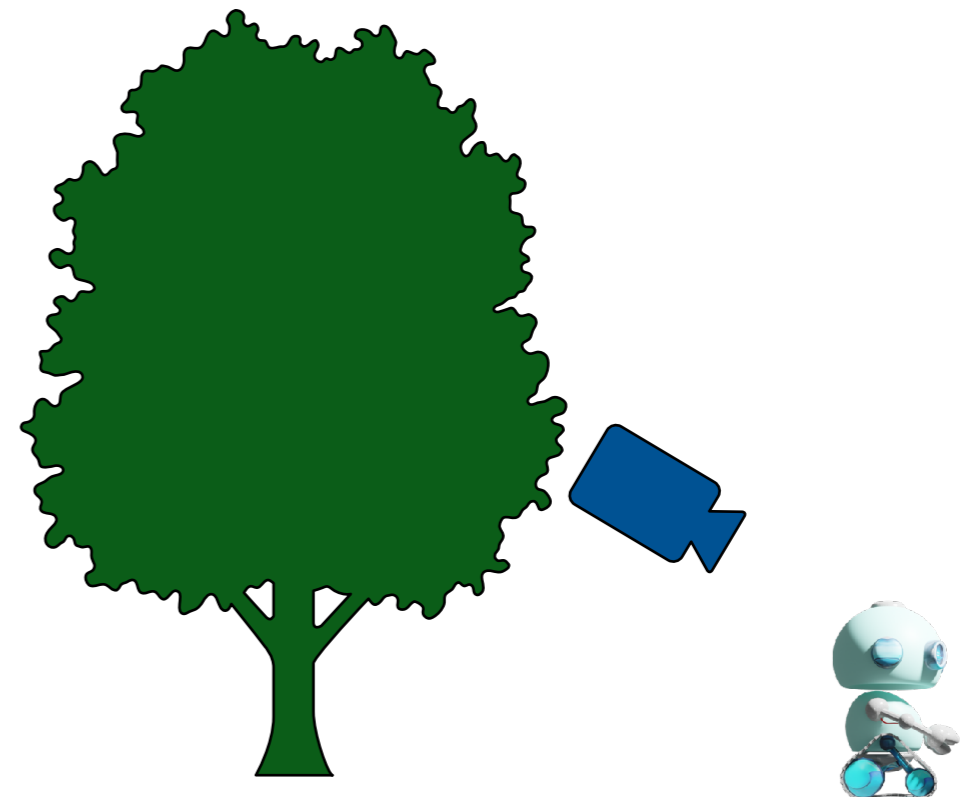- Afterwards let camera fall back to original distance
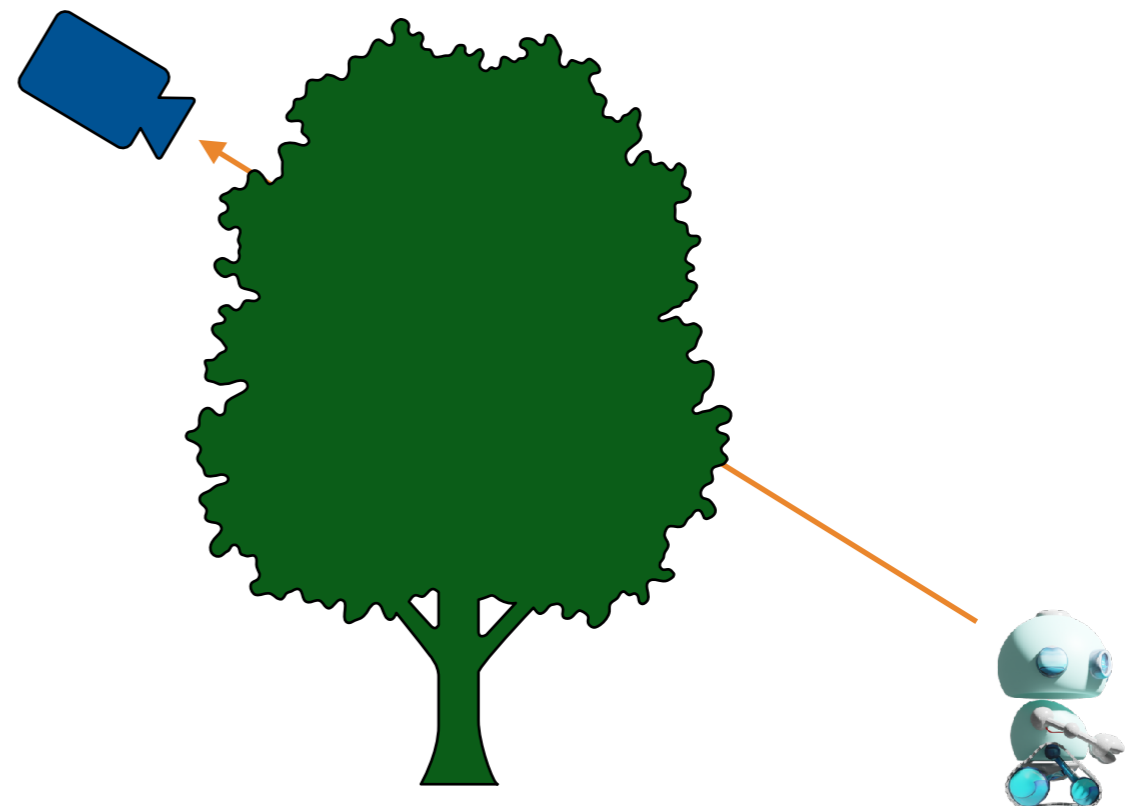
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Summary/Outlook

- AI is very helpful, but not usable unsupervised
- It takes practice to use it

- Implement feedback from DemoDay for rocks
- Extend world to more biomes
- Implement rest of rocket-building
- Bigger changes in world between timelines