Note: This project follows the MDM (method for design materialization) practice of reflective documentation (at least to the best of my abilities).

Project on GitHub: https://github.com/lmorv/exo-matrix

Online journal: https://github.com/lmorv/exo-matrix/blob/main/process/leo-journal.md

Reflections: https://github.com/lmorv/exo-matrix/blob/main/process/leo-why.md

Commit history: https://github.com/lmorv/exo-matrix/commits/main/

Commit messages in receding order into the past (latest first):

Dec 6, 2023

PublishedBuild: level design, presentation prep, insights

- Took screenshots from the presentation Fime and I did during the workshop with the agro-ecologists to make my final presentation for class. I wanted to surface the processes of parsing the significant variables in the system as well as the game design concepts and techniques I brought to bear in my ideation and communication of design goals with the team.
- The build represents a proof of concept level design and individual systems for farmland subdivision, a beetles particle system that swarms around 'magnetic' patches, two types of player movement and a terrain shader that procedurally generates a configuration of cells using a voronoi algorithm. Cells can be configured to be more organized on a grid, their density and size adjusted, borders made wider and thinner and blend with the cells themselves, the color of the cells and borders can be changed and the angle of the borders (which determines their 'gridness') can be animated over time.
- There's a lot of possibilities in terms of design affordances given the parameters of each of the systems, the next step is to make them all work together to generate the landscape as an integrated whole.
- One cool emergent property of the interaction of the system in this low fi state is the structural layout of the level (the placement of different clusters of elements) actually produce some interesting behavior on the beetle particles. It becomes harder for them to gather around the magnetic eco-parcels the further away they are from their pawn point and if their way is impeded by building clusters during their trajectory.

Dec 4, 2023

levelDesign: shaders and placement

- Finalized voronoi terrain map texture, and adjusted a bunch of look related stuffs to make it all look pretty and well laid out. Added a couple farmlands and made them visualizable in the editor window with a square gizmo.

Dec 3, 2023

Farmland: System features and shaders

- Expanded on farmland features to create multiple farmland objects and have subdivision work on all of them even when rotated.
- Started iteration on a voronoi shader to add some visual interest to the ground material. Also to generate a base for the level design.

Sim: Beetle particles!

- Experimenting with beetle particles and force fields attached to sprite assets to attract the particles to them.
- I really like the feel it adds even at this low fi, not-so-flexible state, the particles even collide with the player the way they swarm around the sprite asset representing the acro-ecological patch is very satisfying :).

Nov 15, 2023

Art: Asset export and controls adjustment.

- I'm liking the idea of having multiple characters on screen that can be controlled in different ways (IE WASD and click-to-move), as a way to communicate the idea of collective decision-making. That is why I haven't made a decision about what character to keep. I think I'll just keep both and compliment that with chapter progression to emphasize that element of the narrative.
- To that effect I adjusted the subdivision script to work with the right mouse button instead of the left, separating it from the click-to-move input. This way they can be their own thing. I noticed while demoing the game that people tended to associate the click-to-move character with the function of subdivision when I did not intend them to be coupled in that way.
- I also made a bunch of vector art for the terrain and some basic environment elements. In the process of importing them and trying to use it I discovered that unity does not handle svg assets without a package, and the necessary Vector Graphics package is no longer visible in the package manager (even when showing preview packages). You have to search for it by name as 'com.unity.vectorgraphics' and is listed as experimental in the documentation. I would love to use a more fleshed out vector graphics library like Shapes by Freya Holmer, but for now I just exported my image assets as PNGs instead.
- I don't really have a strong justification to get an SVG workflow going at this point.
- My priority right now is getting the level design looking okay and like it's communicating the idea of a landscape/ map/ territory. Then fleshing out the parcel system and implementing a beetle particle system.

Nov 12, 2023

Art: Vector assets, lots of terrain

- Created a bunch of vector assets in illustrator based on my concept sketches and exported them to start making a map layout in unity with them.
- I had a lot of fun creating the topological terrain variations. I picture these having collisions and representing big mountains that add some interest to the level design.

Bugs: Fixes and re-implementation

- This commit includes a fix for the click to move script where the wrong UP axis orientation was preventing complete freedom of movement along x and y.
- Also included is a re-implementation of the parcel subdivision script by Sascha! It now uses the input system and the sub-cells are placed correctly within their parent rectangles. I'll try to dive into more detail in a journal entry later.

Nov 7, 2023

Movement: Player movement experiments

- Testing out some player movement options. Top down and click to move. I ran into issues with the click to move behavior, my guess is that it's got to do with the way the horizontal plane axis are treated. The player character only moves in a horizontal line across the screen and does not travel up and down to the actual xy coordinates of the target direction. Don't know how to fix it at this moment.
- I may move on to visual development aspects of the project, or game loop structural stuff (implementing chapter/ scene transitions), or maybe I'll try to get a particle simulation going.

Main

Nov 5, 2023

Prototype: Experimenting with rectangle subdivision.

- Tried to implement a rectangle subdivision script using UI image elements, It did not work out very well haha. I don't know hoe to make the newly spawned rectangles be positioned and sized correctly within the outer rectangles.
- I also prepped the scene to implement two types of character movement controls (point to move and WASD).

Design: Design docs and references

- Added a couple more references to the articles folder and the first draft of the one page proposal with a bibliography.
- Also updated my design notes document and the photoshop conceptualization doc.

Oct 21, 2023

IdeationAndDesign: Created Unity project, added WIP design docs and materials

- Added pictures of the white board diagram that resulted from the workshop we had with the ecologists team in Mexico and Fime.
- I made more concept drawings for a simplified version of the simulation involving subdivision of square patches. In the MoodSketch psd document.
- I also added the presentation slides from the workshop.
- And I included our collaborative google docs design file in it's current state. It includes a ton of thoughts and design iteration that extend the entities list from the 'design notes' doc with behavior description, a cleaned up version of the variable data flow diagram from the workshop, and more.
- And finally I am creating the unity project to start working on the prototype.

Oct 3, 2023

Design, journal: Updating repo for colab

- Renamed my MDM files by prefixing them with my name. That is to allow Fime to create his own journal in the process folder. Once we're able to troubleshoot his permissions.
- I also made very disorganized deign notes from my review of the main paper and my last chat with Fime.
- And I made a chunky journal entry.

Oct 2, 2023

Merge branch 'main' of https://github.com/lmorv/exo-matrix

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Design: evaluation & formulation

- I created a 'one-pager' of the general concept and design/ research goals of the game and adapted the README file into that format to reflect that info.
- I also spent a good amount of time doing a deep dive into the science reference material. I read the main paper of the study with the description of the computational model, and the methodology. And I drew out some notes on what game objects are at play in the simulation.
- I have some ideas of how the system can be 'gamified', how objects may behave in their implementation, and how that may integrate with narrative design/ story progression consideration.
- Next step is laying down those ideas on paper somehow, maybe I'll start with casual journaling. And see if that triggers more, better, more detailed ideas.

Sep 24, 2023

Update README.md

png instead of psd -_-

Update README.md
Okay I think I fixed it for real this time.

Update README.md
Fixed image embed (hopefully)

Update README.md
Embedded mood sketch into readme.

readme: updating it
- Slight modification of description, added 'Team' section and updated details of the folder structure section.

lookDev: mood sketch
- Created a mood sketch for the main gameplay interface. I am not thinking too much about functionality at this point. I am just trying to create a sort of mockup of what the UI may look like and try to introduce a whole bunch of elements like icons, types of terrain, the title of the game in fancy lettering, and a dialogue text box.
- I used a screenshot of a section of Zaachila as a base and drew on top based on my notebook sketches. And tried to incorporate the 3 types of terrain I identified in my original sketch: agricultural 'matrices', elevated terrain, green areas (forest maybe), and urban areas.
- The text in the dialogue box is meant to be both practical and introduce a bit of worldbuilding flavor. Alluding to both game mechanics and magical elements of the soft fantasy setting I am going for. It says: "The beetle helmet allows you to visualize information at the territory level."

Sep 23, 2023

Journal: First journal entry!
- Just a big ol journal entry with tons of chat transcript funness.

Reference: Maps of Zaachila
- Adding some screenshots of the township of Zaachila gathered from google maps, in map view and satellite view. My plan is to use these as a starting point for an interface concept sketch, and probably even base the final map of the game on it too. Tho I think that I might want to exercise some creative re-imagining of the space. Introduce more elevation (topology lines) and a bit more interest to the level design.

Sep 20, 2023

Initial commit

- Establishing folder structure.
- Rough README file.
- Added reference images from In Other Waters gameplay interface, pictures of my physical notes and sketches, and the relevant research papers this interactive game is meant to be based on.