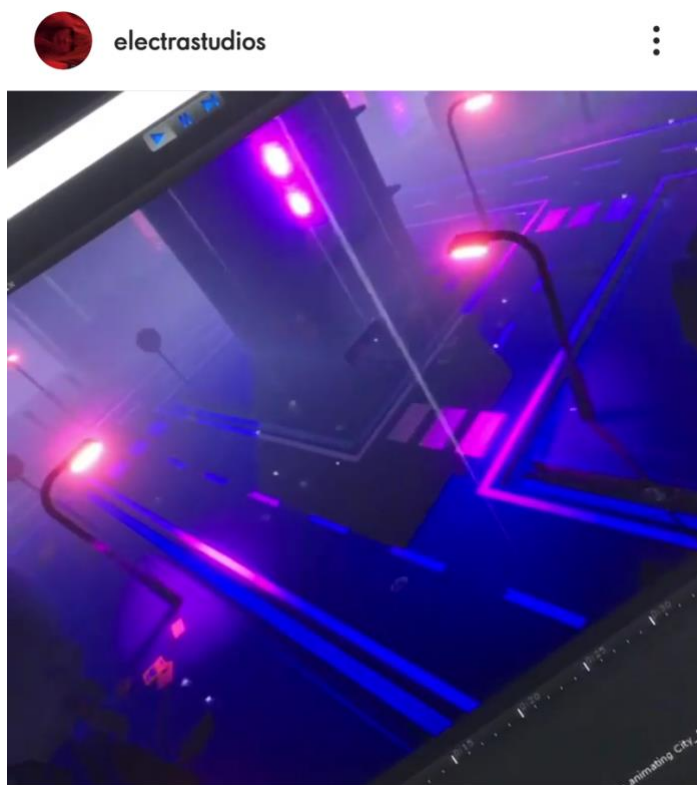


Iconadrive

This document is a copy of the development log for Iconadrive, a class project from 2019. It was a two-person team with Christian O'Brian and me.

Idea and Goal:



Early Idea:

The very earliest idea came when someone from college I follow on Instagram posted a short test clip and my reaction was “damn that’s cool I gotta make an 80s synth city”.

Around the same time I saw a Youtube video celebrating 50 years of the internet posted by the University of Nottingham where they described manually mapping out paths between servers. The two ideas sorta merged.

Chris had done a vaporwave game for an earlier project, so he seemed like a natural choice to team up with. Plus, he’s a solid modeler, which I’m a lot clunkier at.

Research:

Tron was the first stop, it’s the OG in depicting electric networks as cities in pop culture. Also took a look at Ralph Breaks the Internet (2018). Along with other existing 80s Synthwave themed games such as Power Drive 2000 (2016)

Another design bible for me is Joseph Deken’s State of the Art Computer Images (1983). Which depicts early digital artworks being produced at the start of the 1980s.



Ralph Breaks the Internet

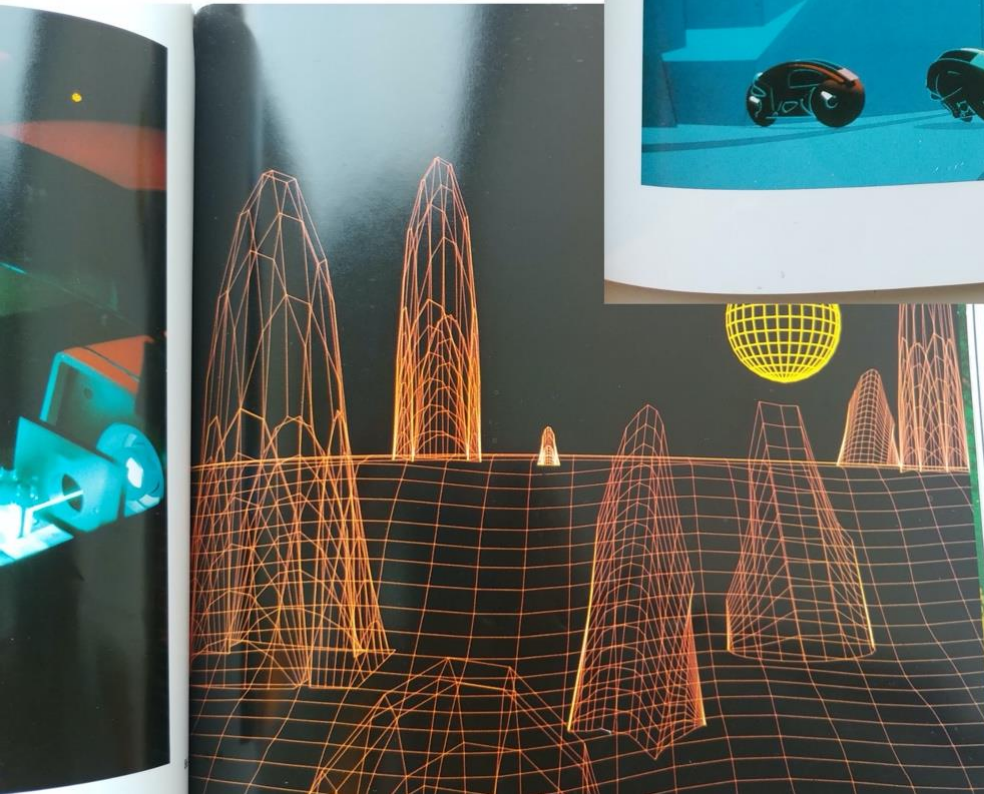
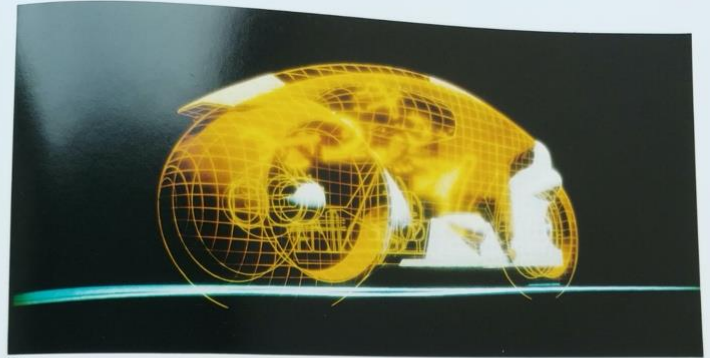
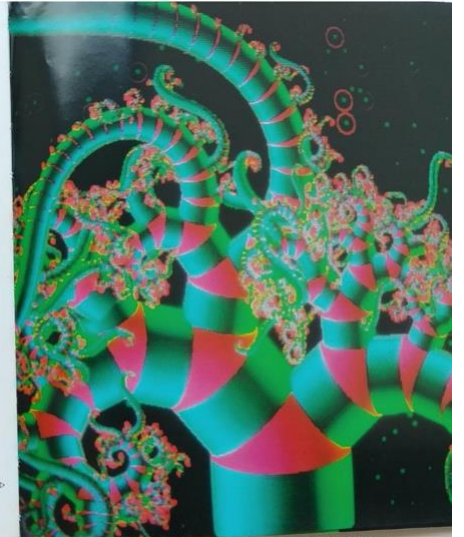


Power Drive 2000

The strong use of blues and reds was chosen to invoke the feeling of cheap plastic toys produced in the 80s.

For the gameplay, in the back of my mind I was thinking of a lot of the weird indie games I used to play off the long forgotten “Apple Downloads” section of the apple site in 2006, it was a weird place, almost unregulated and full of crazy projects because no real companies made games for Macs. A standalone racing death match capture the flag game was exactly the sort of thing you’d find there.

Finally, I really wanted to learn about multiplayer, I know I want to do multiplayer games in the future. A game gets a whole new dimension when you have other players roaming around it, it as unexpected outcomes that are often far more interesting than what a developer can come up with.



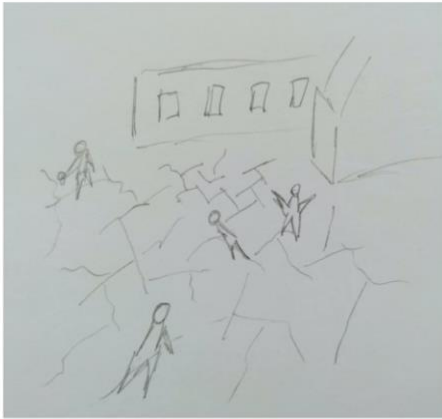
Other reference material and design ideas. With pages from "State of the Art Computer Images" (1983)

Development:

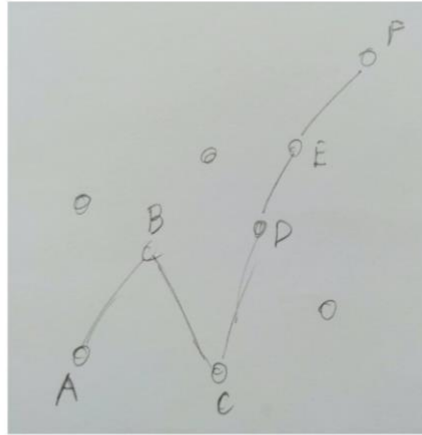
We knew we were doing a network, we knew it would be 80s synthwave themed and we knew it would be based around driving.

Networks are grids of connected points, that naturally lends itself to a city grid. In my mind the game was very clear from the outset.

1. Yard Game



2. Node mapping grid of early internet

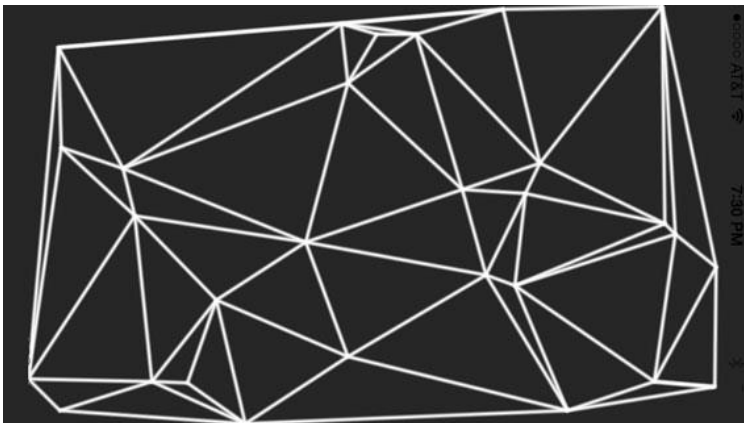


3. The game!



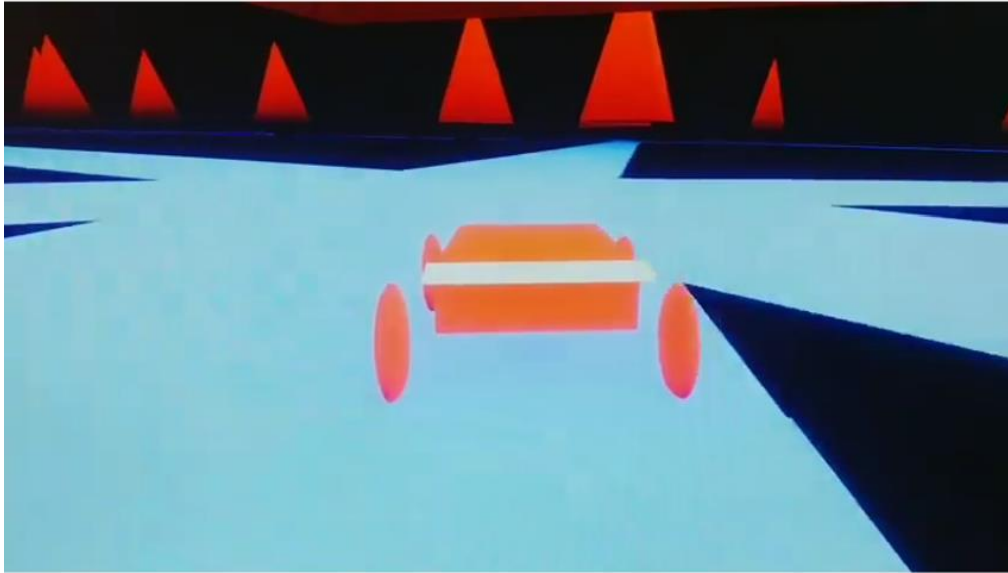
Some of the basic idea of running along roads to grab a piece of information off other players was taken from a school game I remember playing where we would run along cracks in the concrete yard and try to grab an empty wrapper off each other.

The road network itself is created using Delaunay triangulation with the Triangle.Net library. This triangulated data is then used as a template to generate and warp game objects that are spawned into the world.



Later on, additional processing was added to produce a cleaner map, however the initial versions used the raw mesh data.

Quite early on we had a passable game with random roads. From this point on it was really just building on it, adding visual fluff and extra features.



Above you can see a very early demo.

The car was made using modified scripts from Arcade Car Physics unity asset along with the camera script it included.

I spent a big chunk of time figuring out how multiplayer works, there was a lot of conflicting info on what packages to use, it seems like it's a bad time to get into it. Unity is telling everyone not to use UNet, but there is no real information on its newer alternatives.

There was a lot of programming in this project and a lot of building back end support structures to allow for new features to be made. For example, in order to spawn the player on a node, a structure was needed to track all nodes and select a random one. In order to allow the roads to be cleaned up, a whole structure of road indexing had to be added. I think what we ended up with was a lot of solid structures though that with a bit more work could be used to make more mini games really quickly.

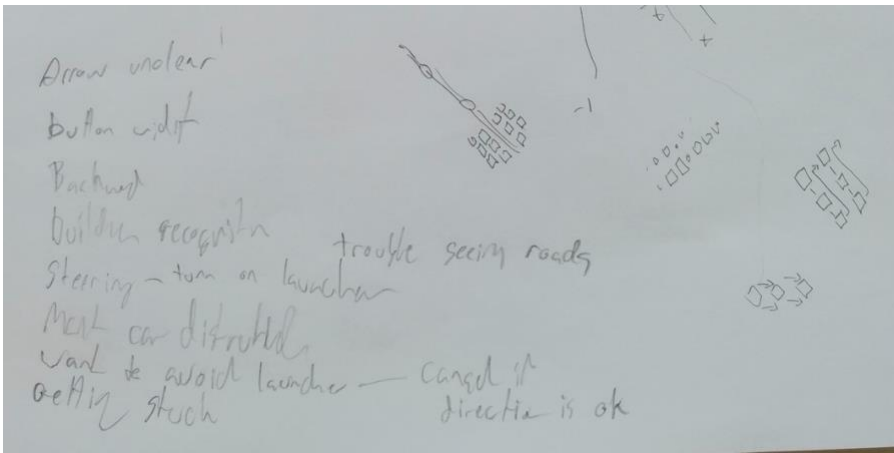
I spend a chunk of time on the post processing, color matching, controller mapping, game feel and modeling the roads. Along with all the code for things like the flag and goal, scores etc. All of these were more complicated as they had to be made in a way that would later be convertible to multiplayer.

Around a week before deadline, I arrange a playtest with some of my roommates, they sat down for about 20 minutes and gave some good feedback.

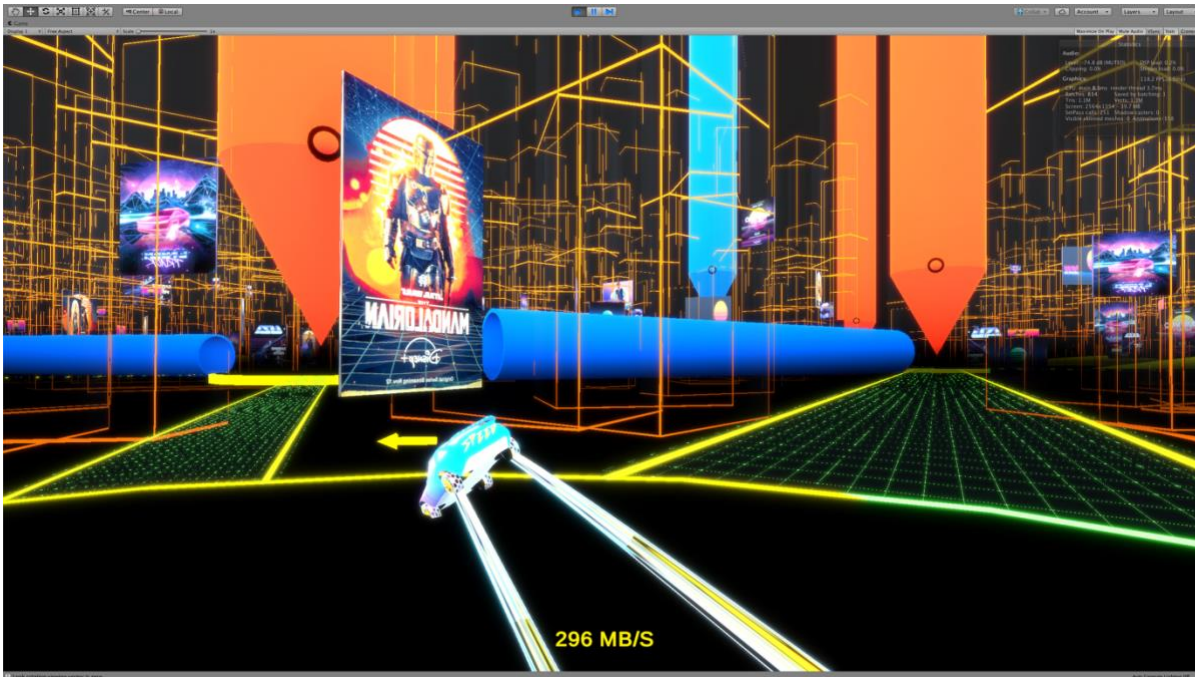
Their biggest issue was not being clear about what objects the player could interact with/where the road was. At the time it was all quite dark. So the final version has more starkly colored objects.

Chris did some very cool work on the city generation and put in fake ads. The plan had been to make the float but it turns out having thousands of moving ads aint good for your FPS.

The capture the flag mechanics and towers that shoot were mostly tacked on at the last minute. We really bit off more than we could chew with all the city code and multiplayer stuff. They are passable but if I was to return to the project the gameplay is the first thing that would get a total redo. From the planning its pretty clear we were far more focused on the city design than anything else.



Notes on feedback.



Semi-finished game, without multi building textures, UI and post processing corrections.

Our first attempt with the HDRP in Unity looks a little flat now, I ended up doing a test mini game that's more of an infinite driver. It takes the road segments and lays them out in an infinite line. On that part of the game we were a bit more familiar with the render style and it had some much more impressive lighting.

What's Good:

Starting out I had no idea how multiplayer in games actually worked in the real world. Even though this project did not complete that, if this were the moon landing then this project was Apollo 10, next time we will do it.

I think the city is great, it looks awesome. The road generation is ok, but I need to find a way to effectively make it work at multiple heights, currently the roads must be flat.

Chris and I had some creative differences, and different workstyles, but we did ultimately pull through and get this done, it could not have been achieved without the good work we both put in, in any team project that's a success.

What's Bad:

I think the flaw in this project was an over focus on engineering and not enough of content. As I said earlier, we put too much focus on the city and not enough on gameplay. We had a solid car and city system, but not much of an actual game. The biggest lesson I'd take away from this project is. Less programing more game. Next time I would put more time on gameplay and exploring an interesting subject and less on engineering. That would go a long way to creating something that is both technically skilled, artistically valid and intellectually valuable.

While the art style is good, it didn't achieve the grainy raw mood I wanted out of the early 80s graphics, that will take more work.

There are programmatic improvements that could be done, gameplay improvements, the main menu could be better and there a dozen of bugs, some of which were present in the demonstration, some of which we hid, such as the inability of the main menu to reload after the game has been started without breaking everything.

Appendix:

Arcade Car Physics - <https://assetstore.unity.com/packages/tools/physics/arcade-car-physics-119484>

Triangle.Net - <https://github.com/eppz/Triangle.NET>

Triangle.Net in Unity - <https://straypixels.net/delaunay-triangulation-terrain/>

Main Menu Music - <https://youtu.be/o4yrTmSbbBc>

Computer Images - <https://www.amazon.com/Computer-Images-State-Joseph-Deken/dp/0941434400>

Ralph Breaks the Internet - https://en.wikipedia.org/wiki/Ralph_Breaks_the_Internet

Tron - <https://en.wikipedia.org/wiki/Tron>

PowerDrive 200 - <https://steamcommunity.com/sharedfiles/filedetails/?id=434946585>