# STELLAR JOCKEYS JANUARY NEWSLETTER

Welcome to the first Stellar Jockeys newsletter for 2022. Let's chat briefly about something else we're doing for Brigador Killers, and catch you up on some of the recent housecleaning.

Benjamin, Stellar Jockeys

Influence Maps And You

In our November newsletter, we talked about changes to shadows in Brigador Killers. This month, we're going to talk about *Influence Maps*. We want to give you a broad overview of what they already do in Brigador, and what we're adding to them for BK. As before, we'll drop some links for further reading.

When a level in Brigador loads, the engine creates something called a navigation mesh which covers the space in a level with a bunch of blue parallelograms, which in our case serve as nodes. Normally these things are not visible to players, but Brigador's debug panel can be used to visualize a lot of what goes on behind the scenes.
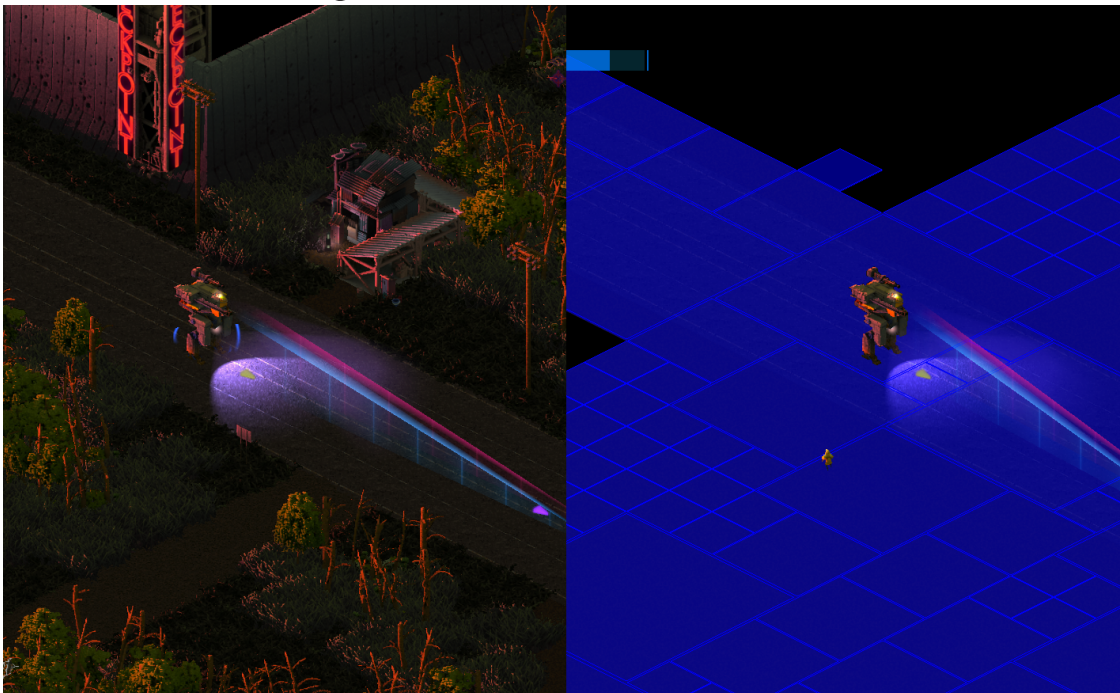
These nodes tell the player and the enemy what space is traversable and

what is not: i.e. anything beyond the bounds of the "walls" of a level will not have any navmesh nodes that can be walked on or driven across. Specifically for the AI, this navmesh assists it with pathfinding. If neighbouring nodes are connected, that means the AI can follow a path between the two and traverse that distance without any problem. What *sort of path* the AI takes between two points is dependent on their current AI state (e.g. "patrolling", "standing guard", "fleeing" etc.) as well as the presence of environmental props like buildings.

[N.B. While we could go into much more detail about nodes, pathfinding and AI states, in order to understand influence maps, we need to acknowledge at least three other overarching concepts that all come together to create the behavior you see in game when encountering NPCs.]

So what, then, are influence maps? If the navmesh gives the AI a basic understanding of where it can go, influence maps give the AI context for that same space. Every frame, the game keeps track of what is going on in the nodes of a navmesh using influence maps. In Brigador, there are five: Player, Enemy, Civilian threat, Safe and Tension.

If we turn on the visualizations for each influence type, we can start to see what each one does. *Player* is simple – it denotes the location node of the player-controlled vehicle. When the player is in a node and we turn on the details for that node, we can see both a number go up and that the cell has changed color from blue to red.
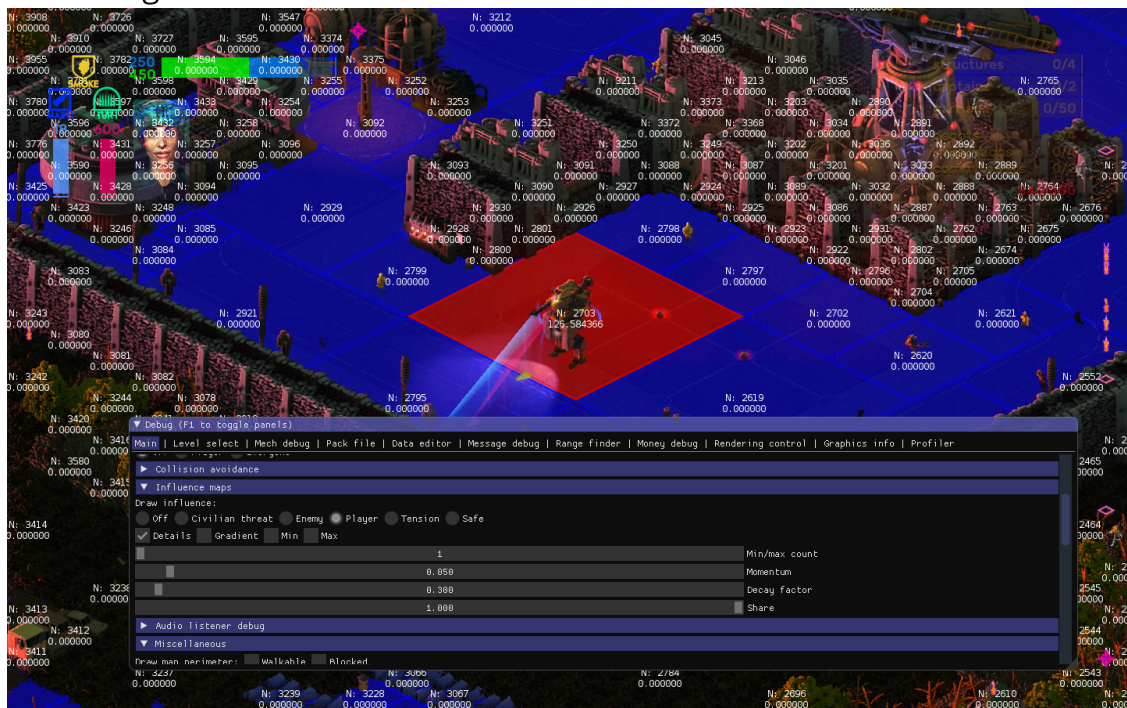
[N.B. While it might be more accurate to refer to influence maps as *heat maps* because of this color visualization – this term is too often correlated with the topic of website and UX design and we don't want to confuse readers.]

Enemy, meanwhile, tells us which nodes are occupied by enemy NPCs. *Civilian threat* is to tell non-combatant units like civilians where to avoid on the map. *Safe* describes "safe" areas to retreat to: areas that are both far

from conflict and that have lots of healthy allies. Lastly, *Tension* is when both *Player* and *Enemy* influence overlap, and the Tension value for a node goes up when both the player and enemy have similar influence values: in other words, it's contested ground.

The joy of having influence maps is that, rather than looking at a bunch of complicated mathematical equations, we as developers get to see a color-coded representation of the AI's perspective of the map, and depending on a variety of actions (explosions, gunfire, being spotted) the corresponding influence maps will inform the AI on what it can or cannot do, such as whether to retreat or engage and what path to take. As an example, influence maps are basically the reason how Brigador manages to avoid creating a stereotypical conga line of enemy units beelining straight towards a player.

For Brigador Killers, one feature we are working on is a sixth influence map called *Gunfire*. The intent for Gunfire is when bullets or artillery shells fly through a node, it will increase its "gunfire" value, enabling enemy AI to react to, say, the concept of suppressive fire. We're doing this because the scale of units for BK is increasing, going from 40 ft tall walking mechs stomping through entire buildings, to street-scale encounters. People don't act like armored vehicles, so we need to introduce new behaviors, like running for cover, or crouching. If you've ever seen the main shootout from 1995's Heat directed by Michael Mann, where the protagonists violently escape through a blockade by firing an excessive amount of gunfire, that's the kind of reactive gameplay we're hoping to emulate.

Currently we have what's called a naïve implementation of the system which has, uh... had an interesting effect as can be seen in a GIF in this recent tweet from Hugh. What's going on here is the Gunfire influence map is being shared between player and enemy, so the enemy's *own shots* within its node are then spooking their allies into ducking each time they fire. To fix this, we'll probably split the Gunfire influence map into two – one for the player and one for the enemy faction – so that enemy units are not negatively affected by their allies' gunfire.

Brigador Updates ICYMI

Check this Steam news post if only to get yourself some high resolution desktop wallpapers. The TL;DR is the final content update for Brigador has been shelved for a later date, and instead we spent the rest of 2021 working on BK's development instead. We have also deployed a small patch to fix an issue with Retina displays on MacOS that will stop the game from taking up only a quarter of your screen.

Merchandise Prices Will Go Up (Eventually)

There was a brilliant response to our holiday sale, so we'd like to thank everyone that bought merchandise and hope you enjoy your purchase.

Unfortunately, everything in the shipping & freight industry was affected in 2021 due to covid, such as increased manufacturing costs, a volatile freight rate market, port shutdowns, as well as logistics pricing increases. What this means is we will have to raise prices on both our existing merchandise and the associated shipping costs. Currently we're doing another run of various items to stock our digital shelves back up, and a very rough estimate is future orders will likely cost at least 10% more compared to current values, but this sum will vary by destination country and item selection.

Please understand that this price increase will not happen immediately, nor do we intend to cause any sort of panic buying either. Instead, we're giving everyone about two months' notice before we make any increases, and next month we hope to have a more exact idea of what is increasing, and by how much. Until that happens, our store is still open for business.
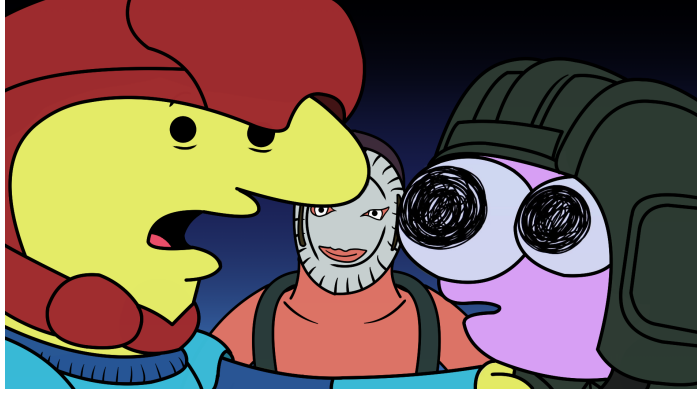
Browse store

Community Spotlight

If you've never set foot in our Discord's #maps-and-modding channel - why? You're missing out on the huanglong's apparent war against our game's framerate
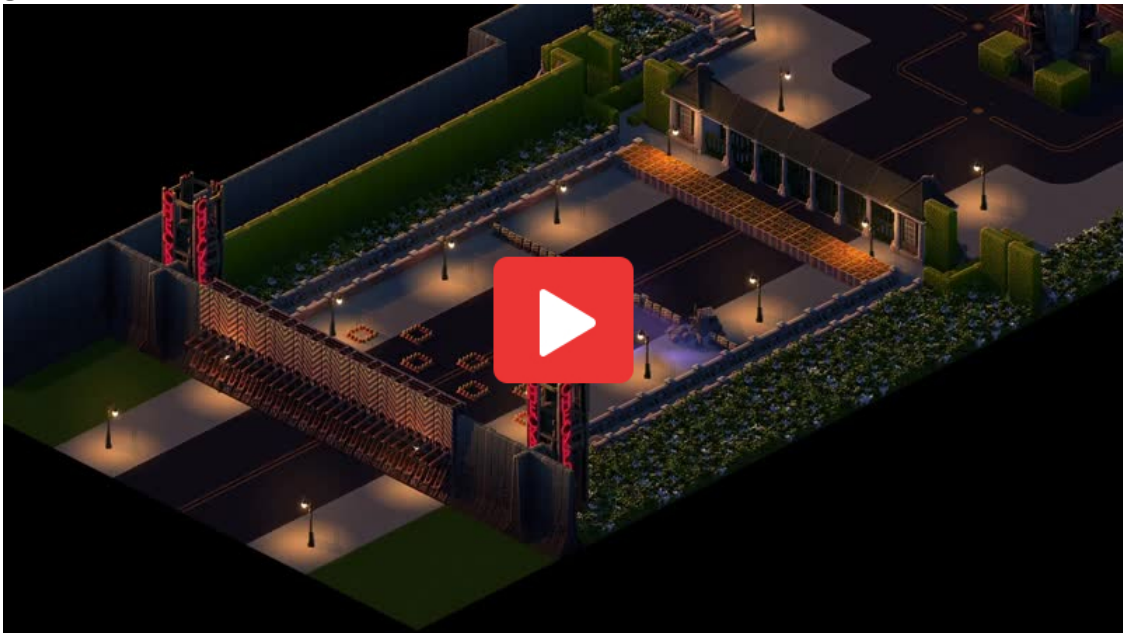
...meanwhile MikeMurdock gave us a spin on the recent meme from Smiling Friends...

...Lastly, Clade Ligma Scout has been showering #design-bureau with a variety of cursed images to celebrate the new year - here's just one of them.

Remember: this is only a handful - the #becks_best channel on our Discord server has many more posts for you to enjoy.

Join Our Discord Server

Next Month

February's still 28 days in 2022, but hopefully we'll have an updated merch price list for you and some other news about upcoming changes for Brigador Killers.

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