

Godot Procedural Generated Racing

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This is an ongoing project to explore how procedural generated content would fit into racing games.

My experience

The most thrilling part of this project was when I attempted to take a Spline curve and coerce it's approximation into an OpenGL buffer for rendering and collision calculations. When I attempted this I knew what I needed was an interpolation along the spline, calculating the tangent so that I could place points offset from the curve by a magnitude along the normal. The interface in Godot provided an interpolation function, but no method to calculate the tangent. This I knew was basic calculus, but I hadn't calculated a derivative in years.

Instead I recalled that a derivative can be conceptualized as a rate calculation over an immeasurably small distance. So my quickest solution to get something close to a tangent was to interpolate along the spline to the desired position

$$x$$

Then, to interpolate to the position after it in the smallest magnitude (lets say).

$$x + 0.000001$$

So the lesson learned is that if your reasoning skills are strong enough, then it is often best to remember the basic concepts of a study, and then derive the specific concepts when needed.

Check it out

- Source Code