Take a walk around your data:
Visualizing spatialized data in Unity 3D

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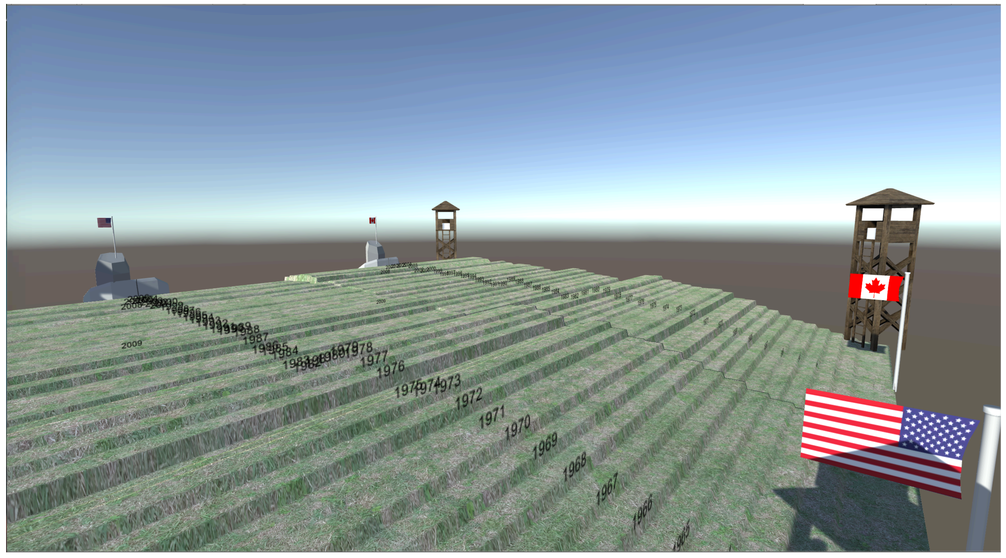
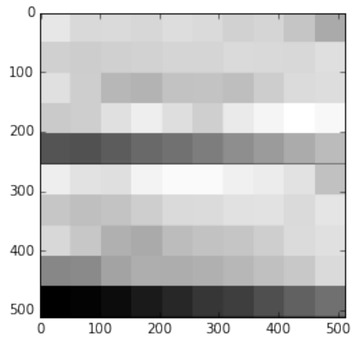
The Cartography

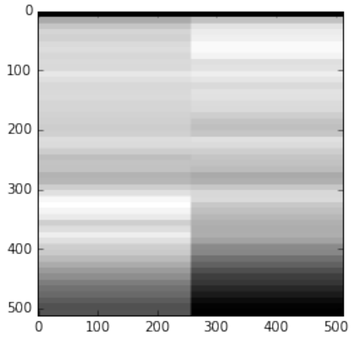
Cartographic component	Research justification
Spatialize time from left to right and back to front	"There is strong evidence that English speakers have an implicit mental timeline that runs along the lateral axis, with earlier times on the left and later times on the right of body-centered space." (Casasanto & Jasmin, p. 647)
Organize terrain to encourage movement along vertical & horizontal directions	"…the data indicate it is easier to update egocentric bearings under translation than rotation." (Klatzky, p. 12) "...the "oblique" effect […] names the finding that vertical and horizontal directions are judged more accurately than oblique directions." (Millar, p. 39)
"Start" & "stop" reference flags	"Perhaps the simplest task for normally sighted adults in large-scale space is to walk straight to an object or target that they see in the environment." (Millar, p.47)
Trees marking significant historic events	"[P]eople typically get lost in the desert, swimming under water or walking blind in unfamiliar spaces or in dense fog. What all such conditions have in common is that the environments lack easily identified or predictable stimuli that could potentially indicate a goal for the traveller or act as intermediate landmarks that could update movements as prescribed in written or graphic representations of the route." (Millar, p. 51)
Watch towers that let player get a "map view" of the terrain	"…an egocentric locational representation, allocentric locational representation, and allocentric heading component constitute distinct, functional modules that interact to produce higher-level representations and support functioning in space." (Klatzky, p. 8)

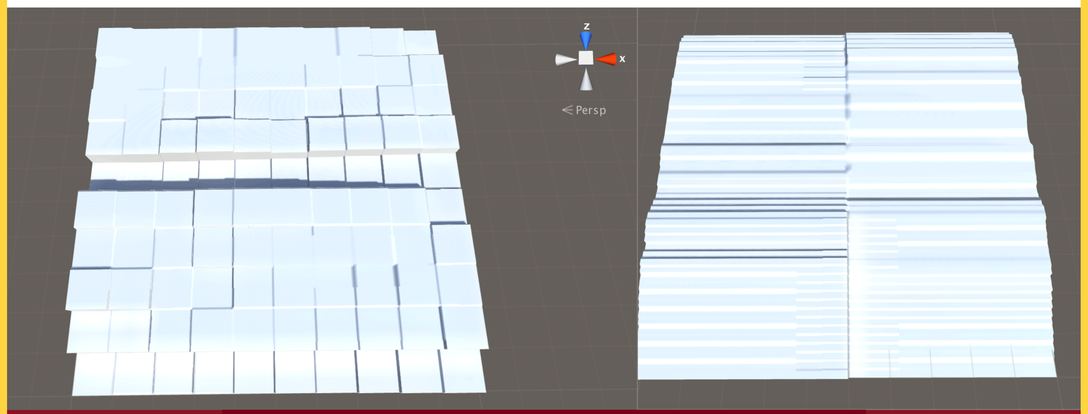


Top-to-bottom layout



Side-by-side layout





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The Workflow

python™

1. Use from World Development Indicators API to download annual indicator data for two countries we would like to compare. Data must not contain missing values, and must be "squarely" periodizable.
2. Scale data to fit within an 8-bit range. Periodize data for top-bottom layout.
3. Transform into 512 x 512 .TIF file that can be used as a heightmap with 8-bit resolution
4. Use image processing software (Photoshop, Gimp) to convert image to .RAW file format

unity

5. Import RAW file as a heightmap and map to a 3D Terrain object
6. Add textures, objects, text labels, and other cartographic elements either manually or via Unity scripting

References

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Millar, S. (2008). *Space and Sense*. East Sussex: Psychology Press.

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