

General overview of the tracing process

Tasks

- Wrapping textures (UV)
- Normals
- Generate strokes

Inputs

- 3D model (e.g. .obj)
- Design:
 - 1st: vector pattern textures with color labels (e.g. SVG)
 - 2nd: colored pattern textures
 - 3rd: raster image + vectorization
 - 4th: front/side images

Outputs

- List of strokes:
 - 3D positions (start + end)
 - normal vector
 - color ID

Steps

1. (Texture Projection)
2. Color separation
 - 1st: multiple input textures, by color
 - later: color isolation and approximation
3. Topological separation
 - Color islands
4. Contour & filling
 - Contour segmentation → longer strokes
 - Filling segmentation → many little parallel strokes (TBD: what kind of pattern, topological optimization)
 - Position interpolation to compute 3D positions of texture points
 - Path segmentation according to normals (e.g. delta threshold)
5. Ordering
 - Sort little paths to minimize distance between consecutive end- and start-points, as well as normal delta (graph)
6. Output
 - Aggregate coordinates with color and normals
 - Format data for next step

Questions

- one long stroke or multiple little strokes ? what is best and why ?
- should we take into consideration the size of the pen tip, especially for filling ?
- what should WE optimize ?

- what kind of filling patterns ? should they be optimized relative to the local topology ? how ?

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