Non-Photorealistic Rendering with Attribute-based Mapping

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Motivation

Non-photorealist rendering is a common rendering method used in game industry and 3D animation, and attribute-based mapping (Toon Shading) is also a frequently used rendering techniques for rea-time 3D animation, so I would like to explore and combine these two techniques together in the project to create a good cartoon style rendering.

Goals

- Rendering feature lines
    - Boundary
    - Silhouette
    - Crease
    - Other discontinuities (user can set artist bit for threshold)
- Using Gooch shading for tones
- Using Toon shading for texture (shadow, highlight)

Expected deliverables

- All feature lines are rendered correctly
    - Boundary
    - Silhouette
    - Crease
    - Other discontinuities (this might be quite challenging)
- Gooch shader works correctly
- Toon shader works correctly

Bibliography

1. Gooch-et-al-1998
2. Buchanan-Costa_Sousa-2000
3. Barla-et-al-2006