Match maker

Constrained texture mapping

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Introduction

Cross parameterization, 2D texture on a 3D mesh

Basically matching parts in the texture to parts on the mesh

Background

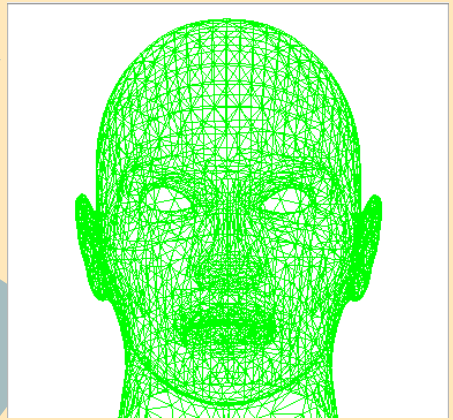
Why is cross-parameterization useful?

Traditional approach needs a skilled artist to draw texture to fit properly to a specific mesh, also can’t reuse texture on a different geometric mesh

This approach can alter the mesh to match perfectly the most important features between both

Goal

- Input: 3D model of a human’s head
  Texture of a tiger’s face
  A set of constraints
- Expected result: texture mapping with constraints



+

+ Constraints

Process

a. Virtual boundary construction (for both mesh and texture)

b. Constraint selection

c. Triangulation

d. Matching

e. Embedding

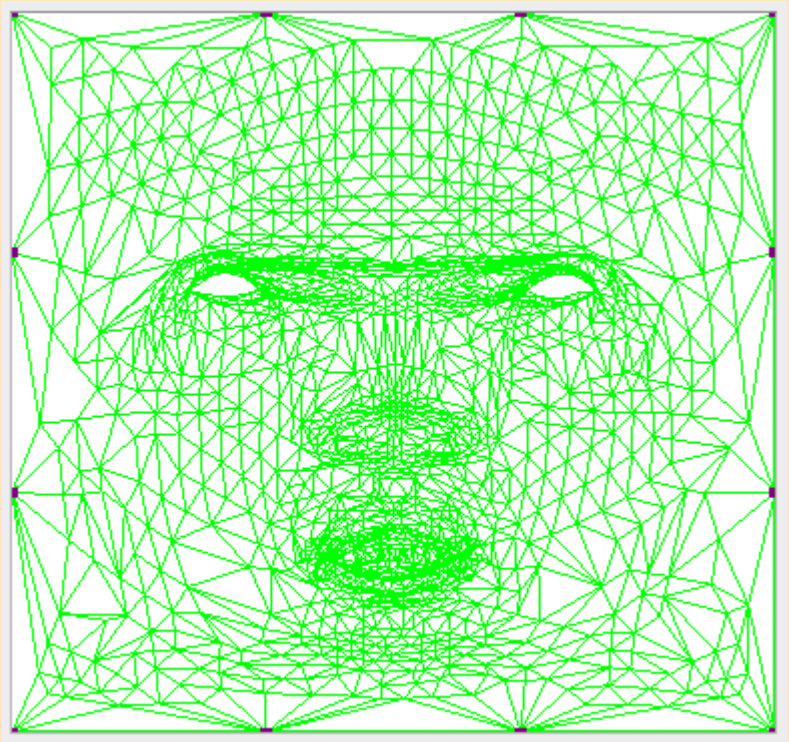
Algorithms

- Delaunay Triangulation [Shewchuk]

- Matching algorithm

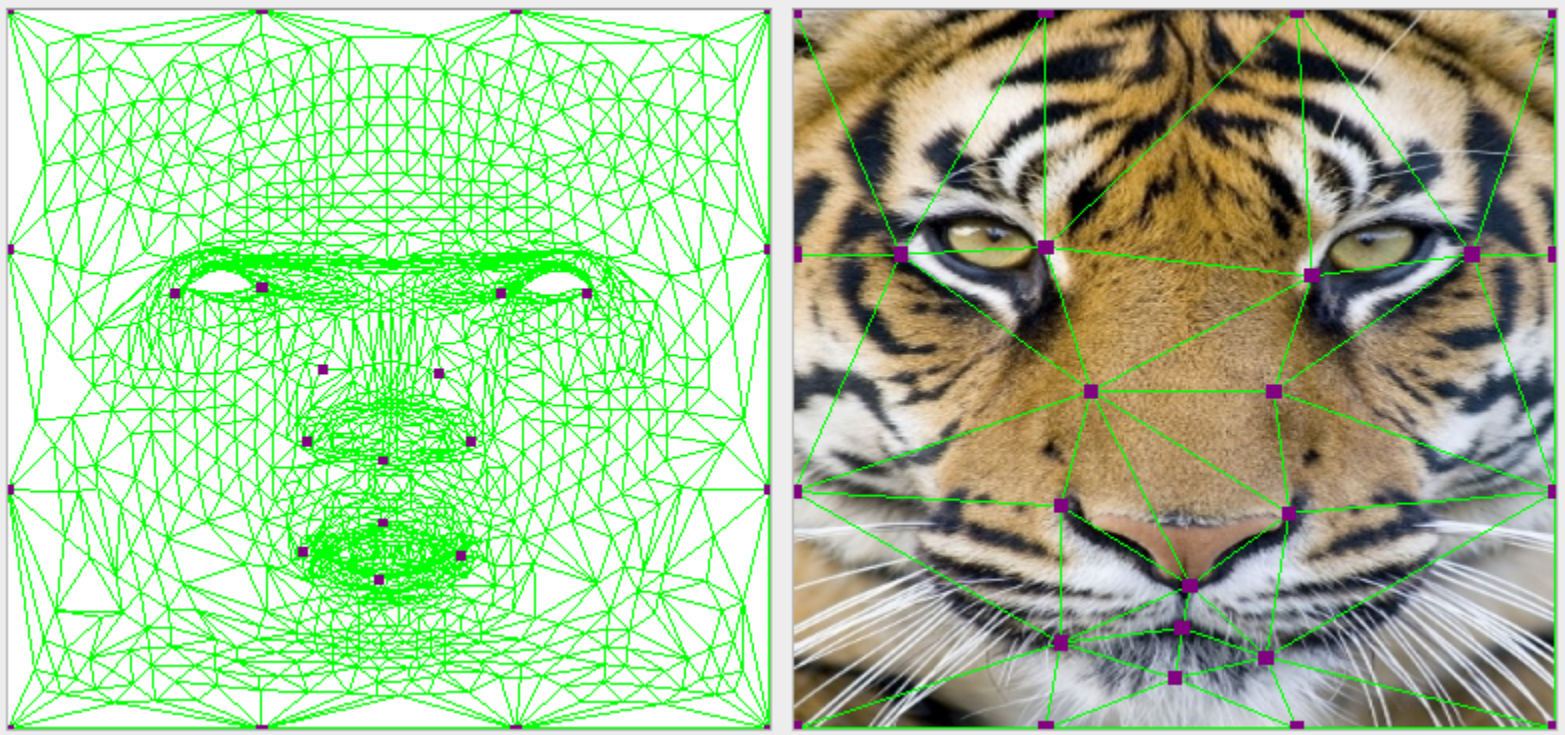
- Embedding [Tutte]

Virtual boundary construction

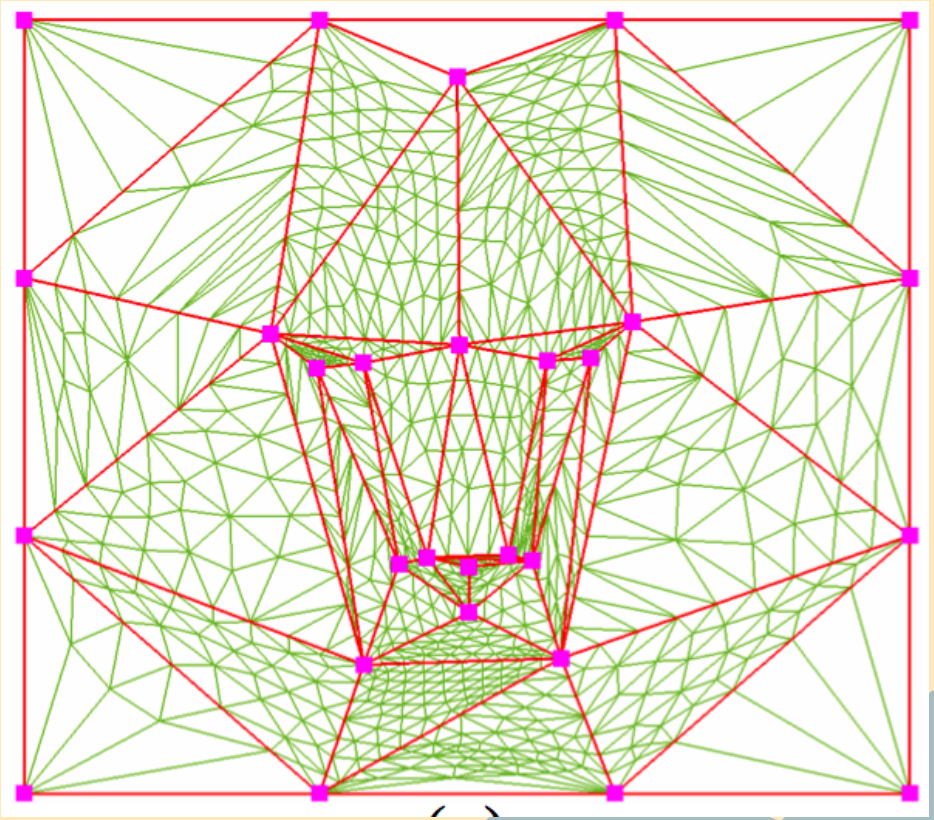


Delaunay Triangulation

Matching



Embedding



Demo

Q&A