

Doc. Chalmovianský GM+2V

- *Geometrické modelovanie*
- *Application of quadrilateral remeshing*
- *with Mgr. Michal Zrubec, VECTARY*



Application of mesh hole filling

- *with Mgr. Michal Zrubec, VECTARY*



DP: Doc. FERKO

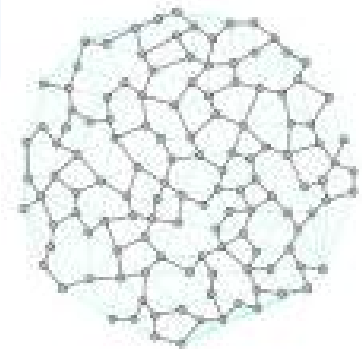
3V + 2

- *Irregular 2D cutting stock problem heuristic implementation,*
- *with Mgr. Roman Danielis, VECTARY*
- *Triangle mesh segmentation,*
- *with Mgr. Roman Danielis, VECTARY*
- *Optimization of infill for standing object,*
- *with Ing. Tomáš Vanek, VECTARY*
- *Triangulácia rozšíreného polygónu*
- *Porovnanie 14+ metód prieniku lúča s trojuholníkom v prostredí Embree a test novej*



BP: Doc. FERKO

- *Triangulacia jednoducheho polygonu (lineárna, optimálna)*
- *Porovnanie 14+ metód prieniku lúča s trojuholníkom v prostredí Embree*
- *„Skonvexnenie“ dát z Kinektu*
- *Urquhart graph and EMST*

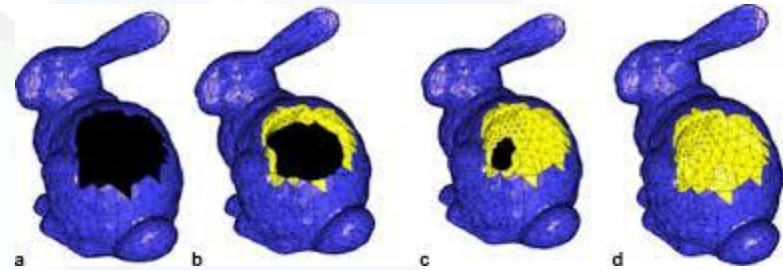


Dr. Bohdal

GM+CG

- ***Geometrické modelovanie***
- ***Počítačová grafika***

VECTARY 1/5



Application of mesh hole filling

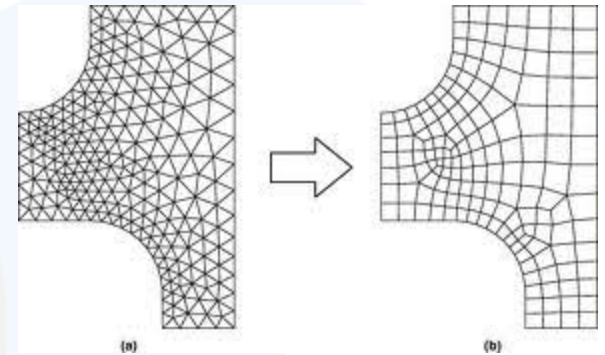
The goal of this thesis is to implement an algorithm for mesh hole filling, with a focus on keeping the resulting surface smooth and polygon size similar to existing mesh polygons. Many such algorithms already exist, therefore a general overview of the topic and understanding of the most important approaches is required.

VECTARY 2/5

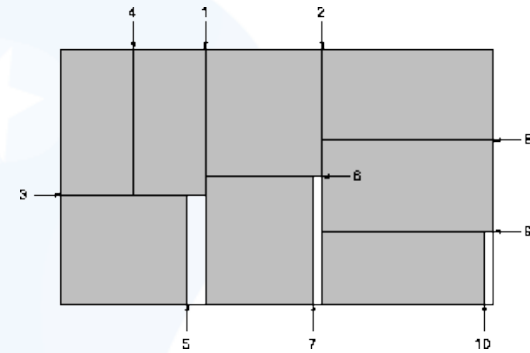


Application of quadrilateral remeshing

The goal of this thesis is to implement an algorithm for quadrilateral remeshing. Many such algorithms already exist, therefore a general overview of the topic and understanding of the most important approaches is required.



VECTARY 3/5



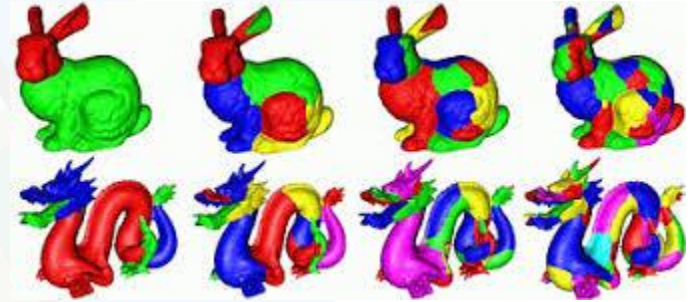
Irregular 2D cutting stock problem heuristic implementation

The goal of this thesis is to implement an approximate solver for an irregular 2D cutting stock problem (also referred to as irregular 2D packing problem). The motivation is to be able to minimize unused space in texture after mesh UV unwrapping. Therefore, the input for the solver is a set of polygons and the solver should also be able to consider user-specified minimal offset between each two polygons.

VECTARY 4/5



Triangle mesh segmentation



Mesh segmentation is an important part of CAD applications that assists surface parametrization, texture mapping or feature extraction from 3D meshes. The goal of this thesis is the overview of methods for automatic or user-aided mesh segmentation techniques, and implementation of selected algorithms, focusing on methods suited for texture mapping.

VECTARY 5/5



Optimization of infill for standing object

Optimalizácia výplne 3D modelu, aby mohol stáť

The goal is to find an algorithm for designing filling of the model to place the center of gravity so, that the model can stand on its own. The filling should be optimized for strength, the minimum of used material and best speed of print.

