

APPLICATIONS

Olga Diamanti

Geometric Computation Group

Stanford University

NON-PHOTOREALISTIC RENDERING



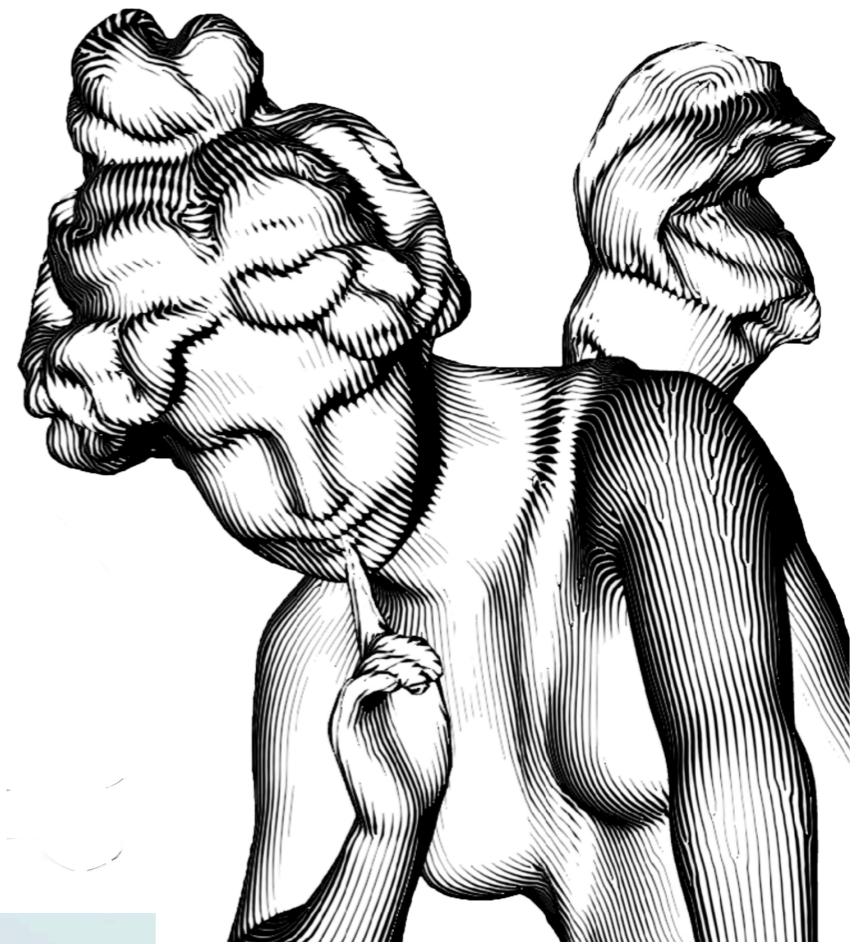
[Hertzmann & Zorin 2000]



[Zhang et al. 2003]



[Li 2011]

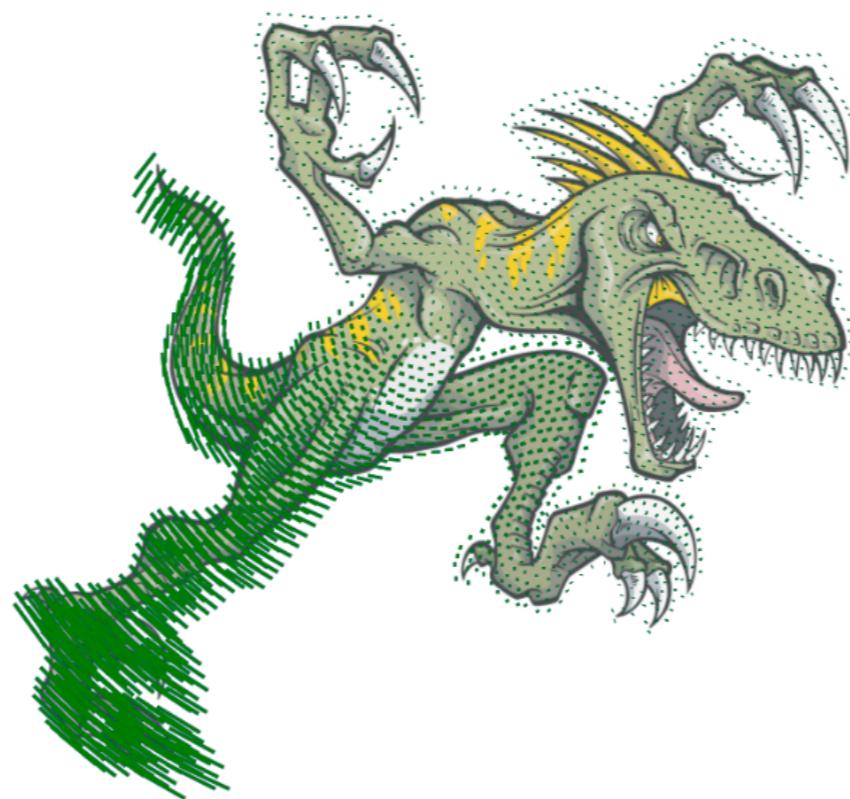


[Knöppel et al. 2015]

IMAGE DEFORMATION – KILLING FIELDS



input shape



displacement field



modified shape

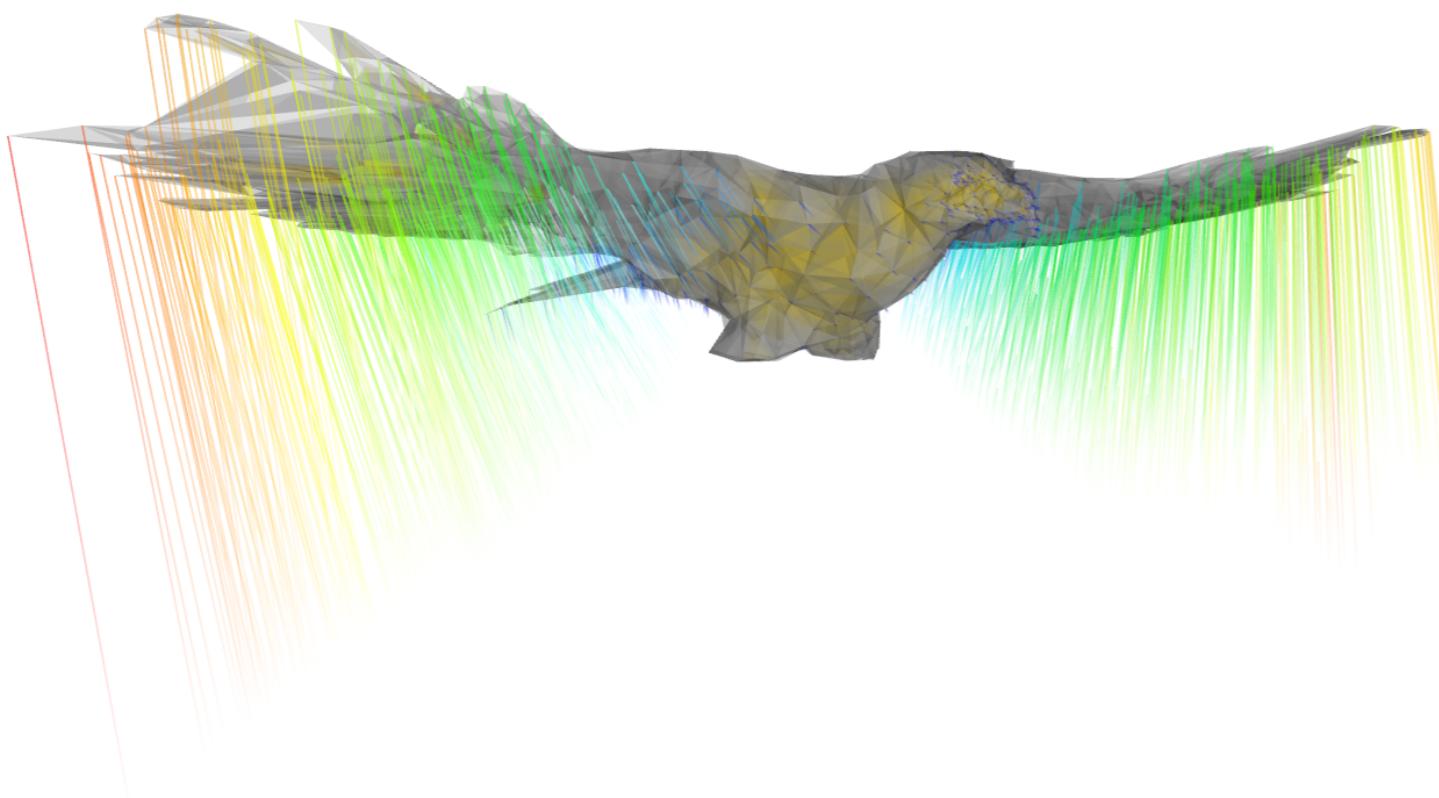
[Solomon et al. 2011]

IMAGE DEFORMATION – KILLING FIELDS



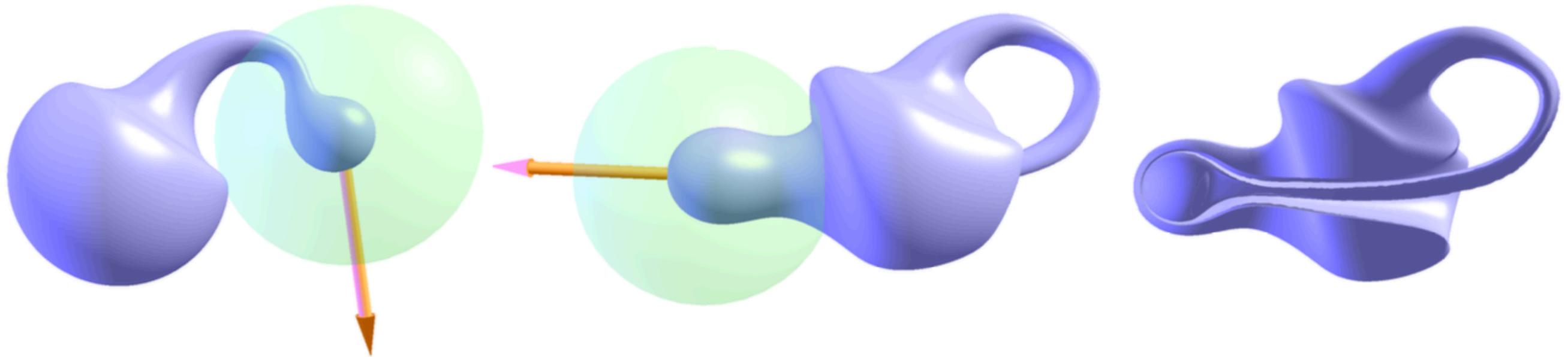
[Solomon et al. 2013]

SHAPE DEFORMATION



[Martinez Esturo et al. 2014]

SHAPE DEFORMATION IN AMBIENT SPACE



[Funck et al. 2006]

DATA ANALYSIS



[Ferreira et al. 2013]

CULTURAL HERITAGE



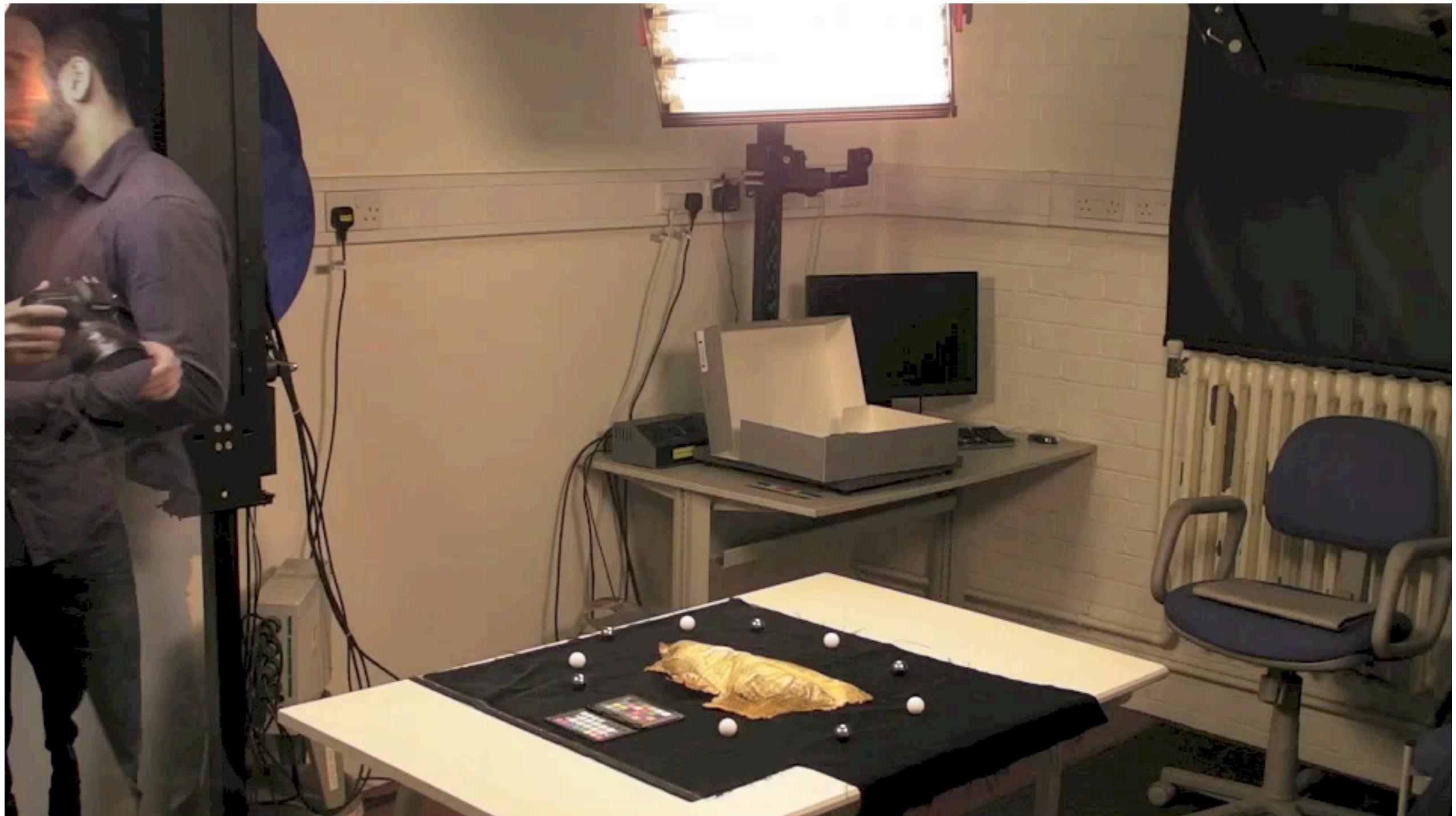
[Pietroni et al. 2011]

CULTURAL HERITAGE



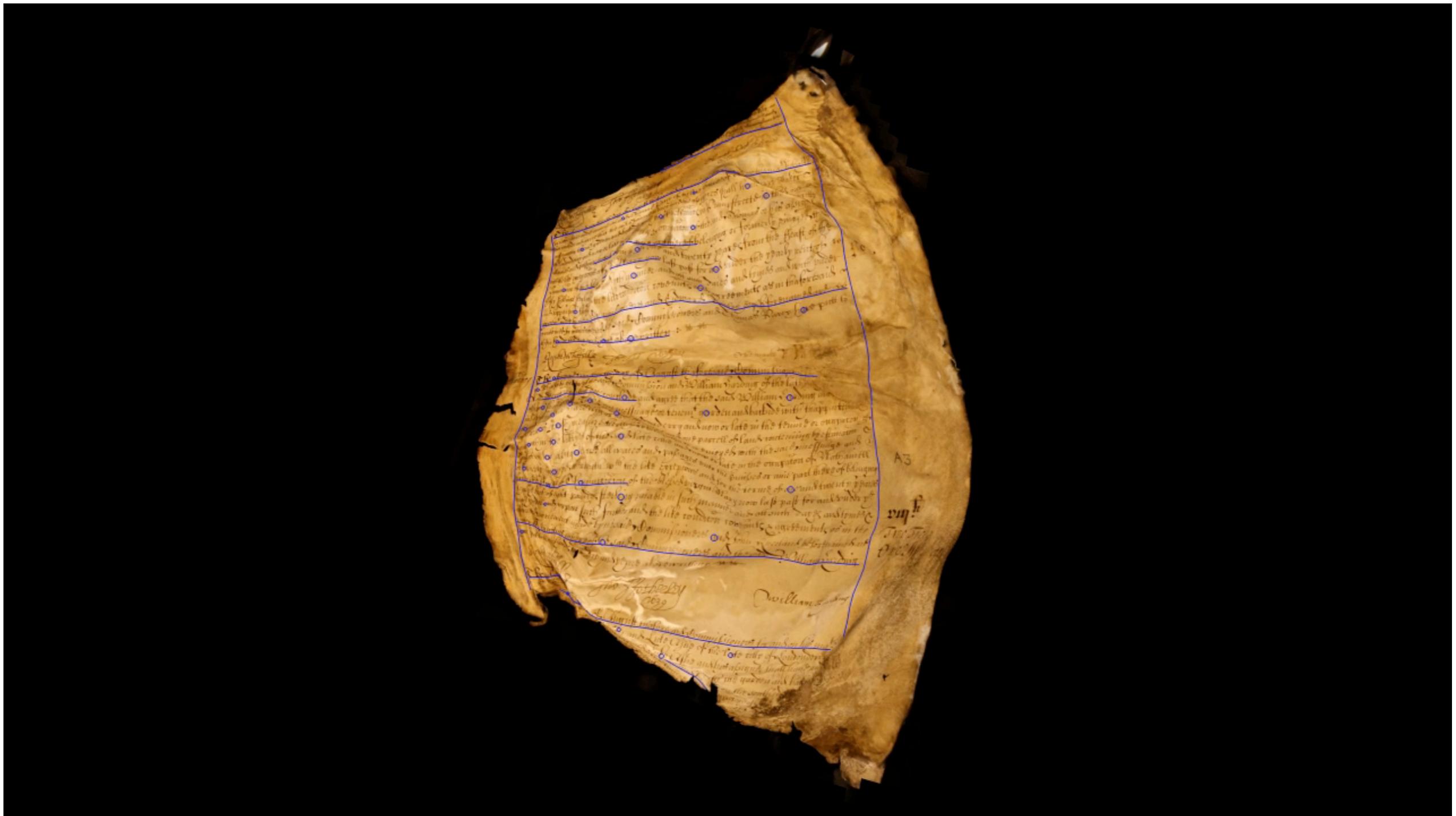
[Pal et al. 2014]

CULTURAL HERITAGE

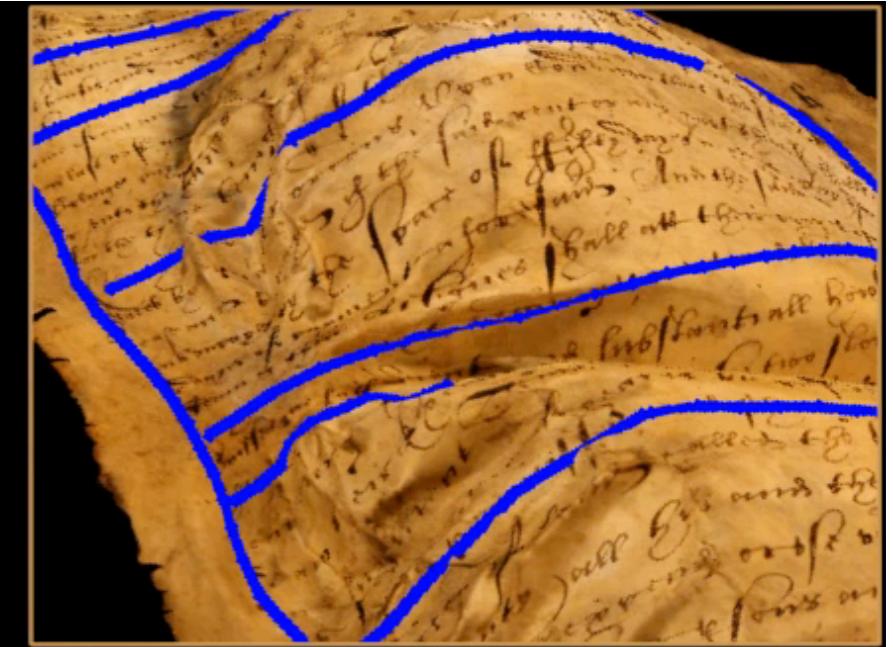
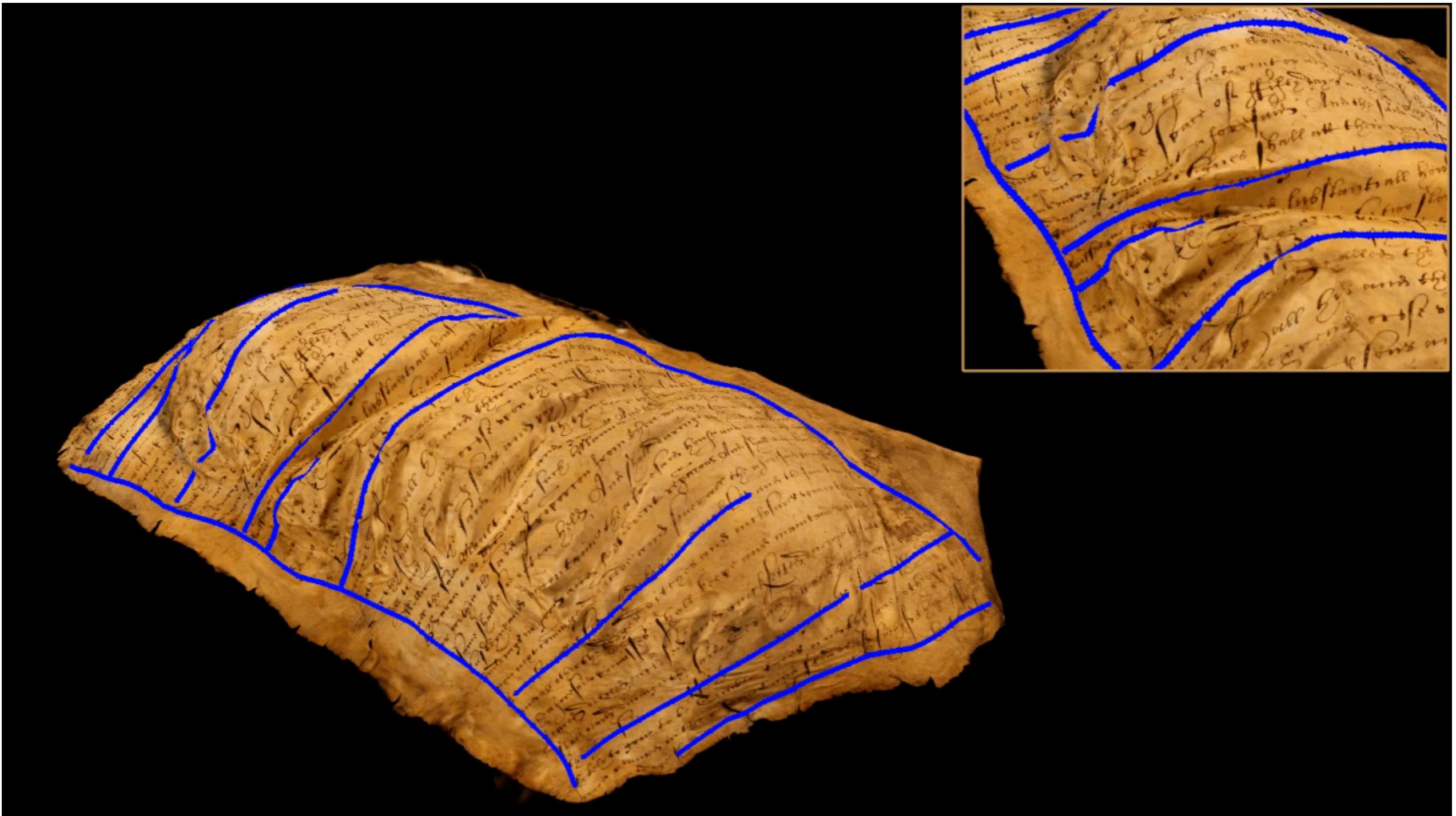


[Pal et al. 2014]

CULTURAL HERITAGE

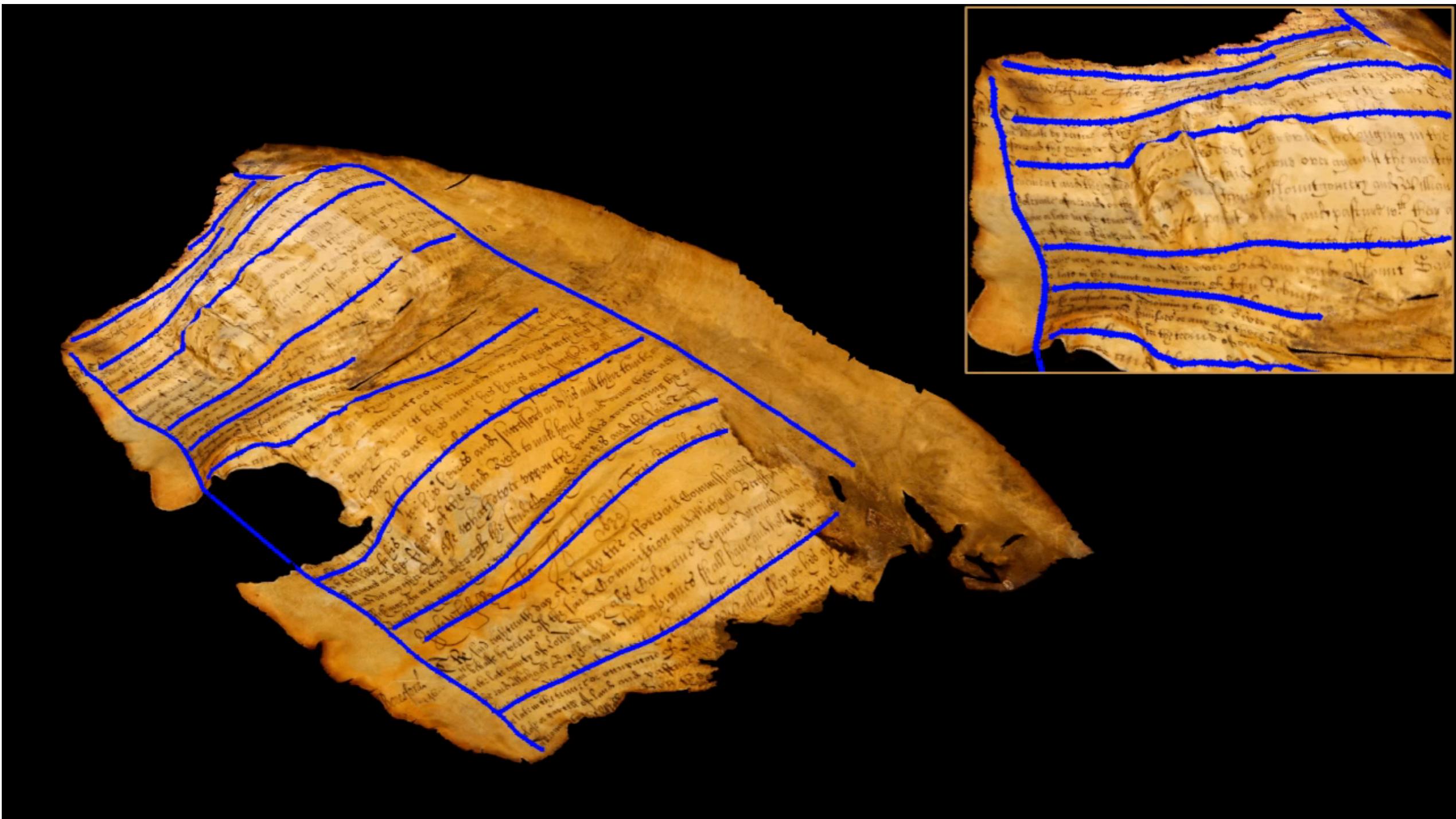


CULTURAL HERITAGE



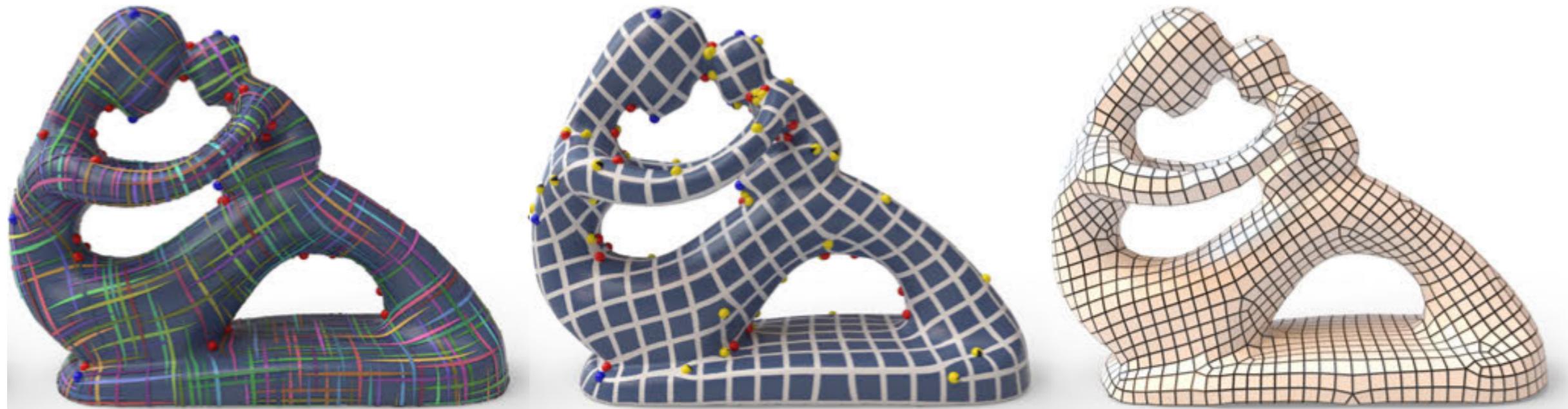
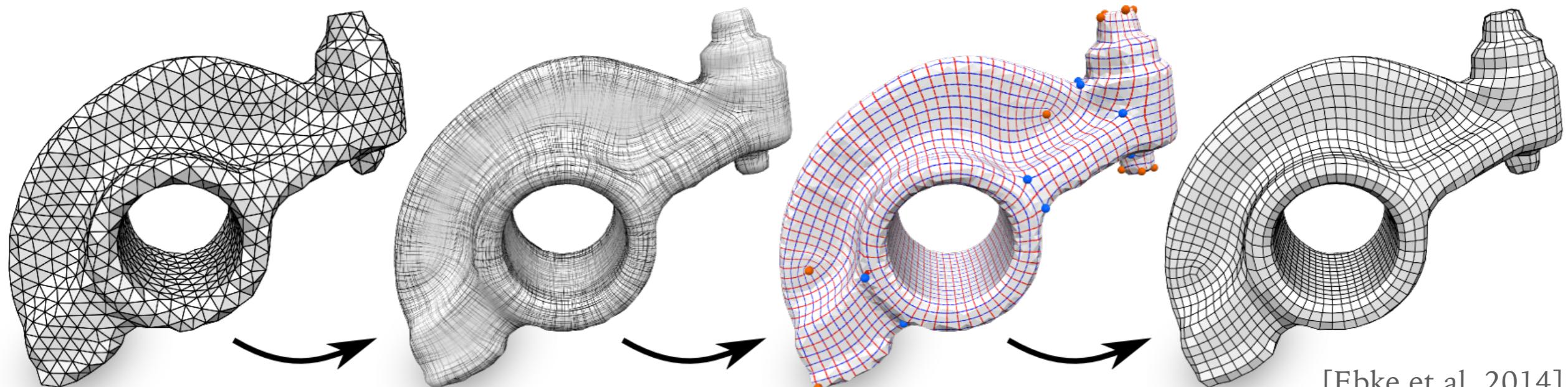
[Pal et al. 2014]

CULTURAL HERITAGE



[Pal et al. 2014]

MESHING (DEMO)



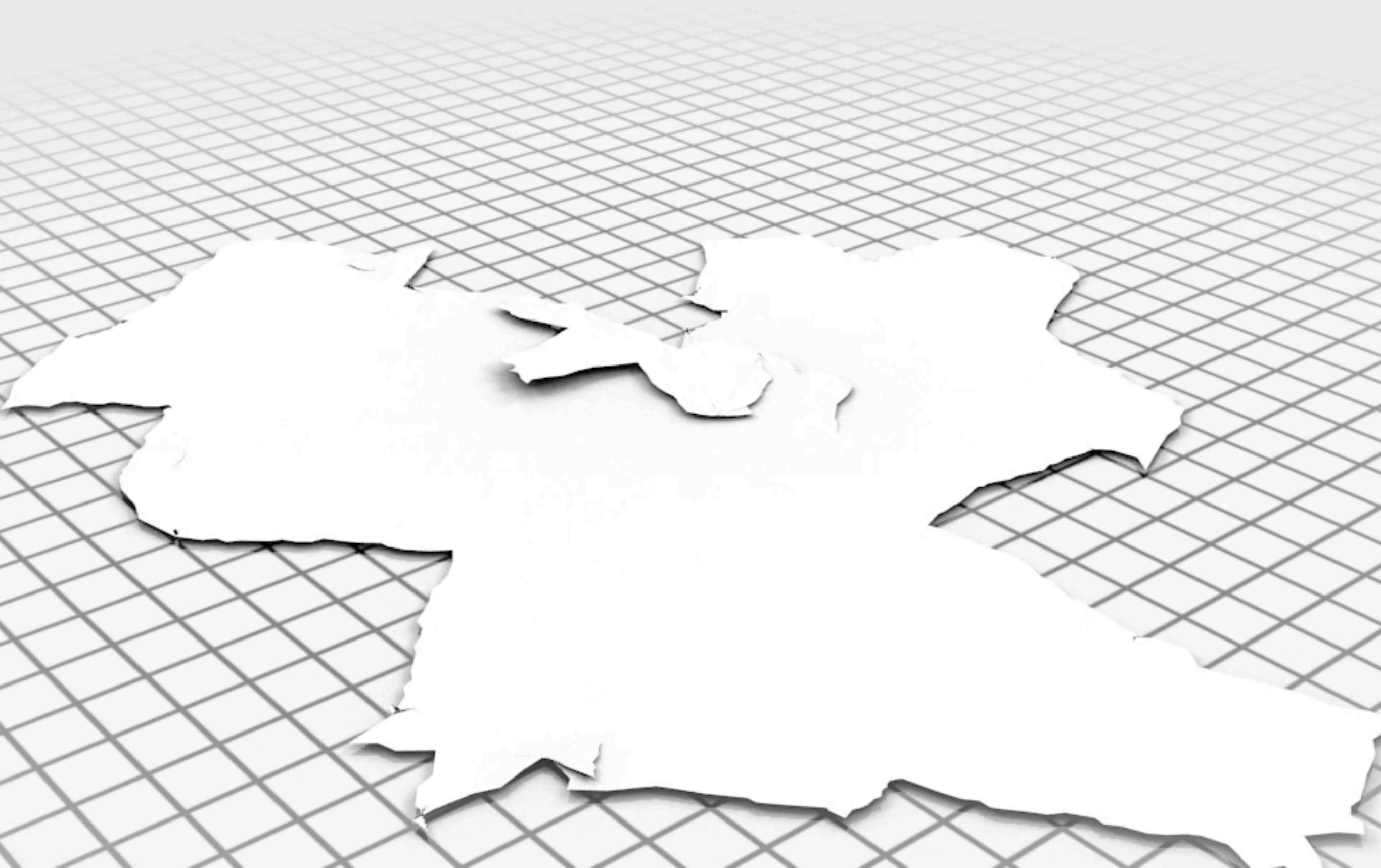
[courtesy of Hans-Christian Ebke]



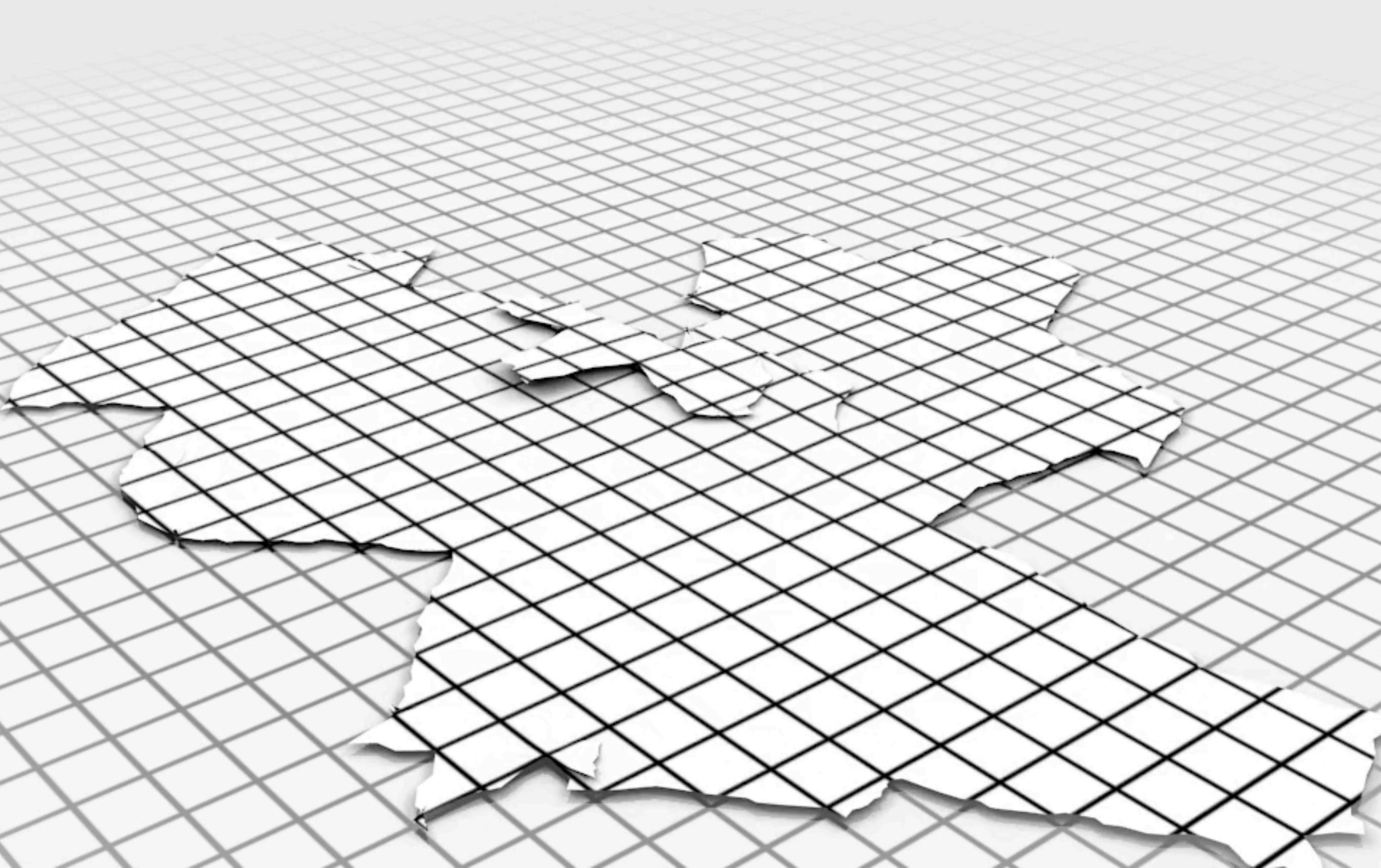
[courtesy of Hans-Christian Ebke]



[courtesy of Hans-Christian Ebke]



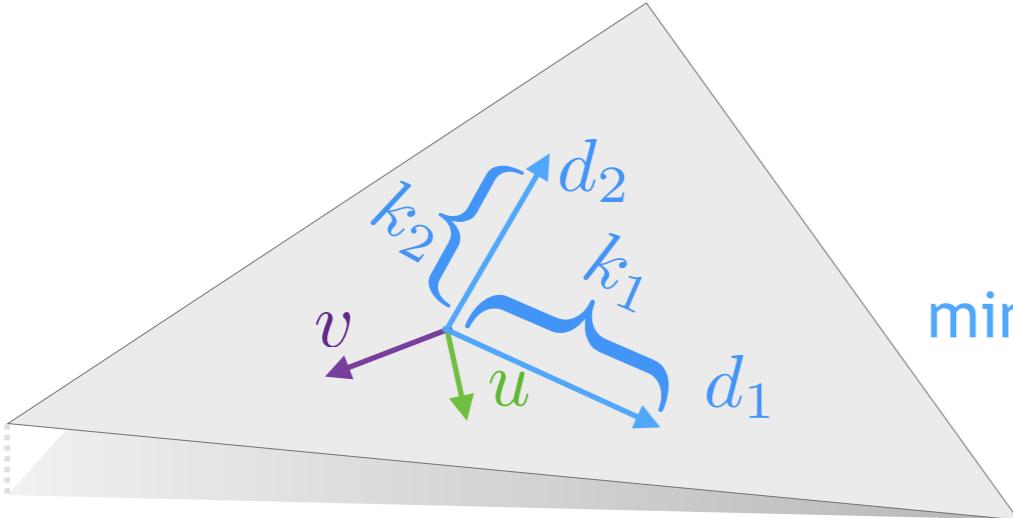
[courtesy of Hans-Christian Ebke]



QUAD MESHING DEMO

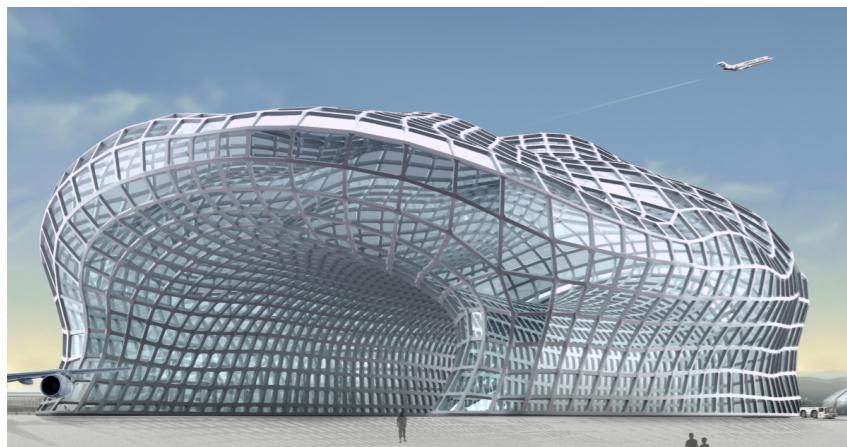
Instant Meshes - <http://igl.ethz.ch/projects/instant-meshes/>

CONJUGATE DIRECTION FIELDS – PLANAR MESHING

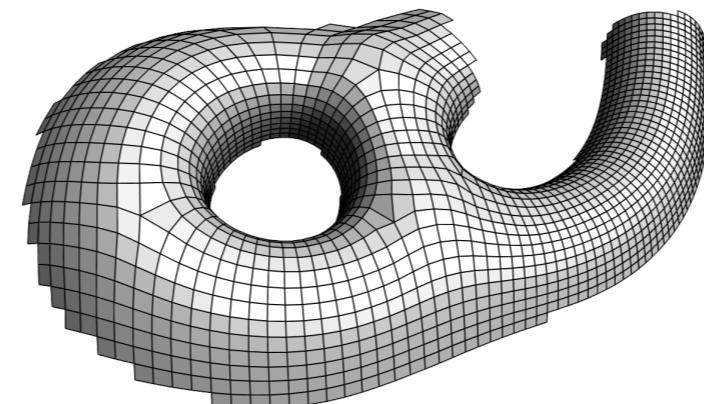


$$\kappa_1(u^T d_1)(v^T d_1) + \kappa_2(u^T d_2)(v^T d_2) = 0$$

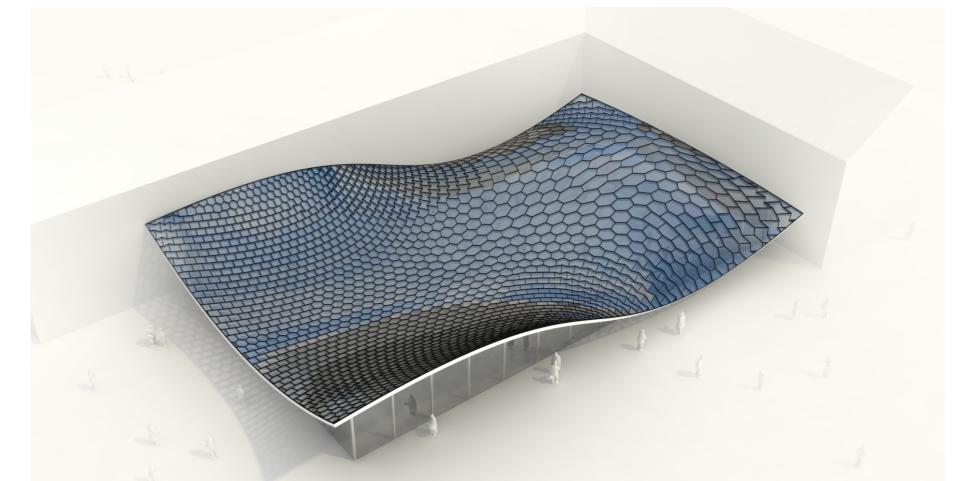
min/max curvatures principal directions



[Liu et al. 2011]



[Diamanti et al. 2015]



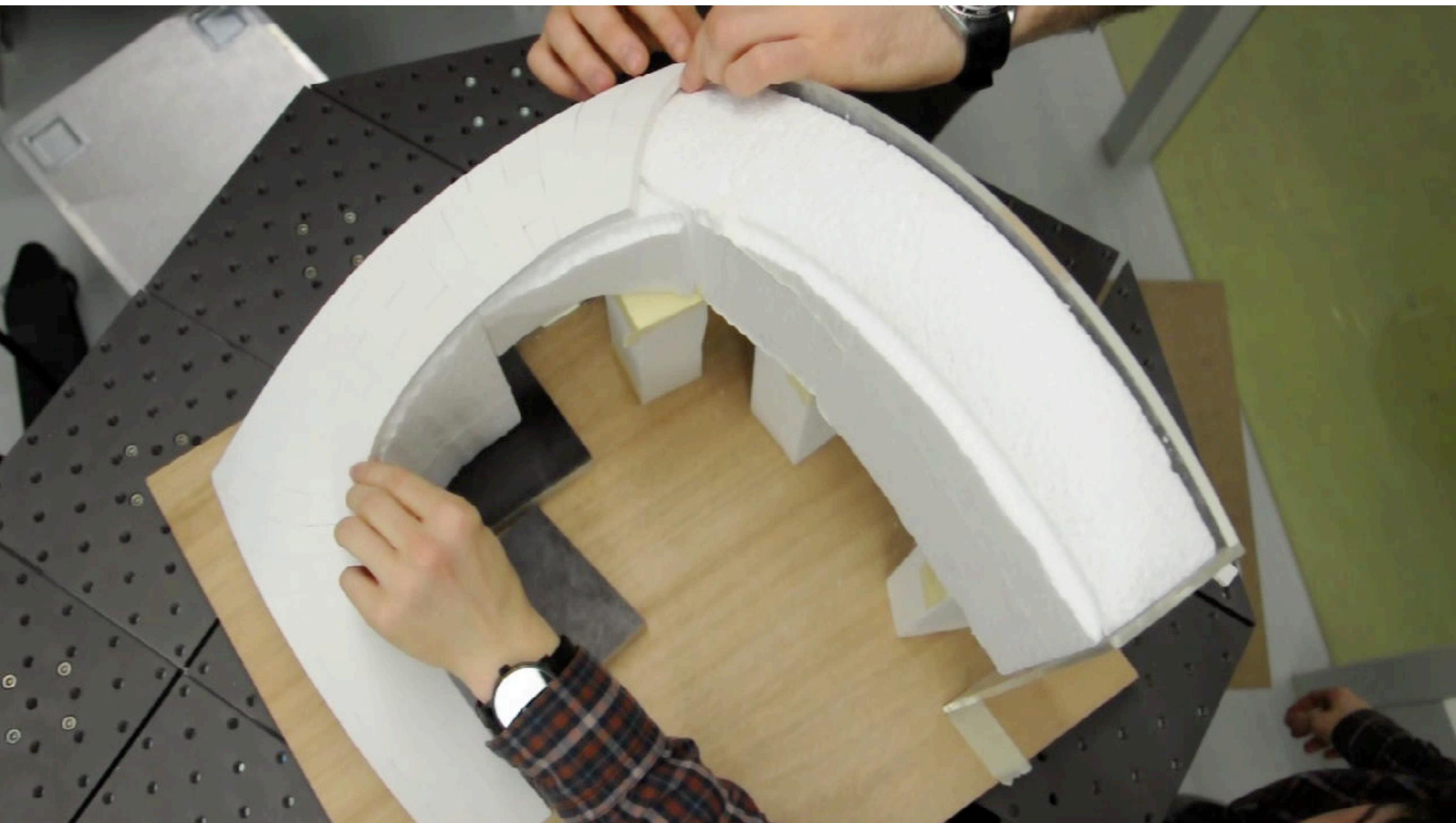
[Vaxman et al. 2015]

FORCE FLOW FOR MASONRY DESIGN

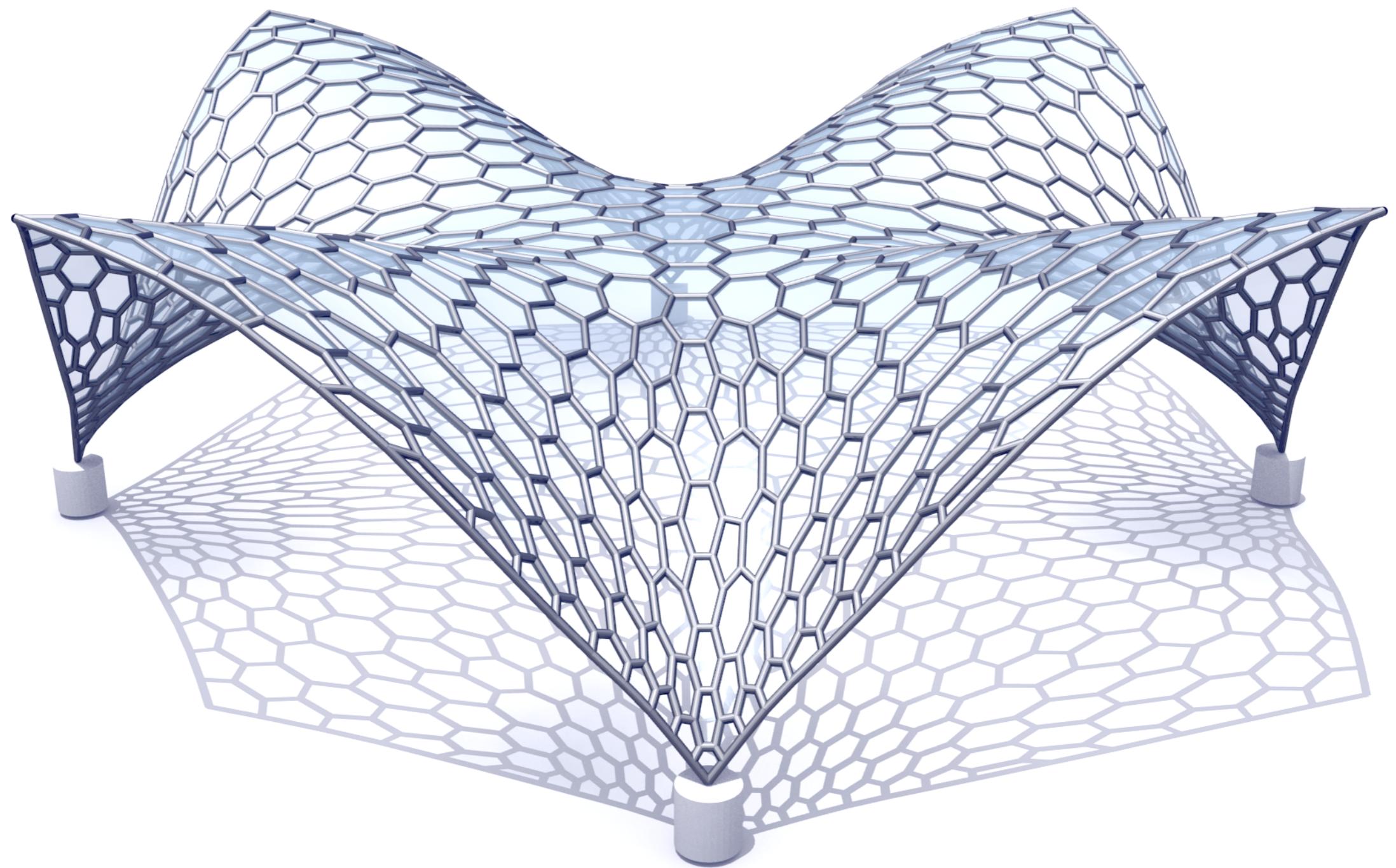


Alfred Waterhouse's **Natural History Museum**, London, UK

FORCE FLOW FOR MASONRY DESIGN

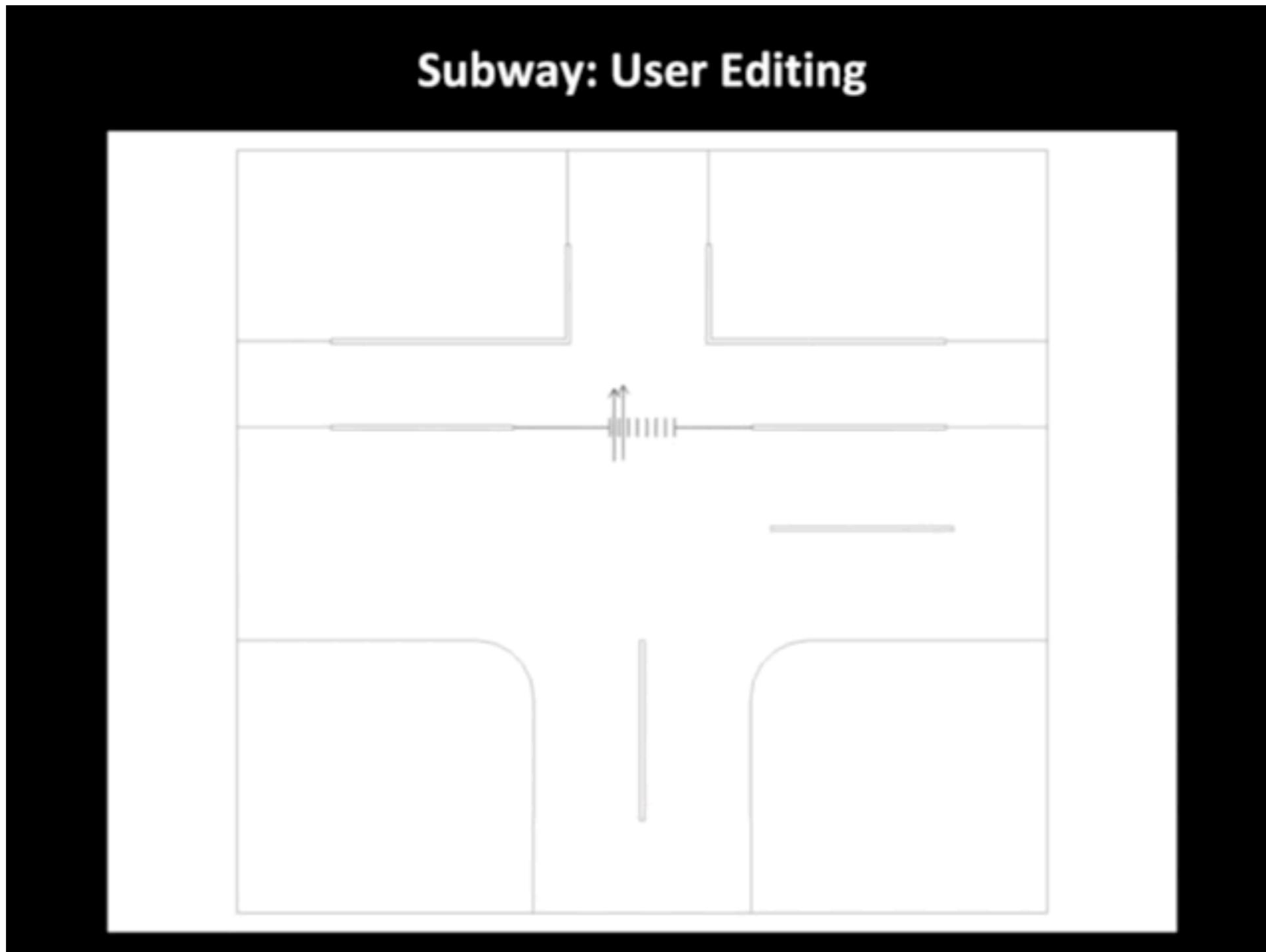


STRUCTURAL DESIGN

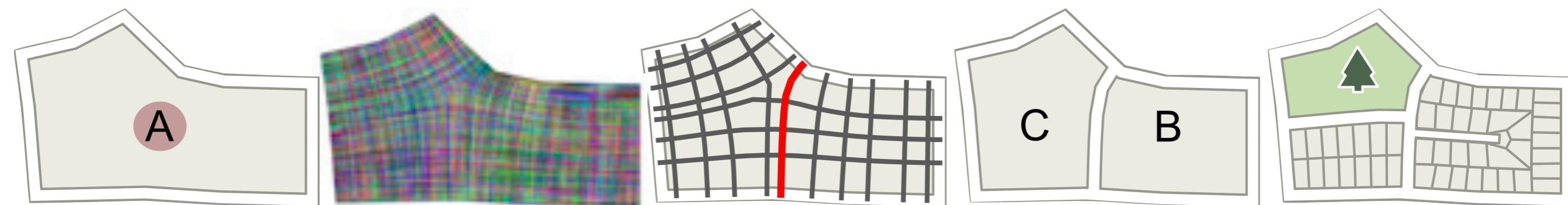
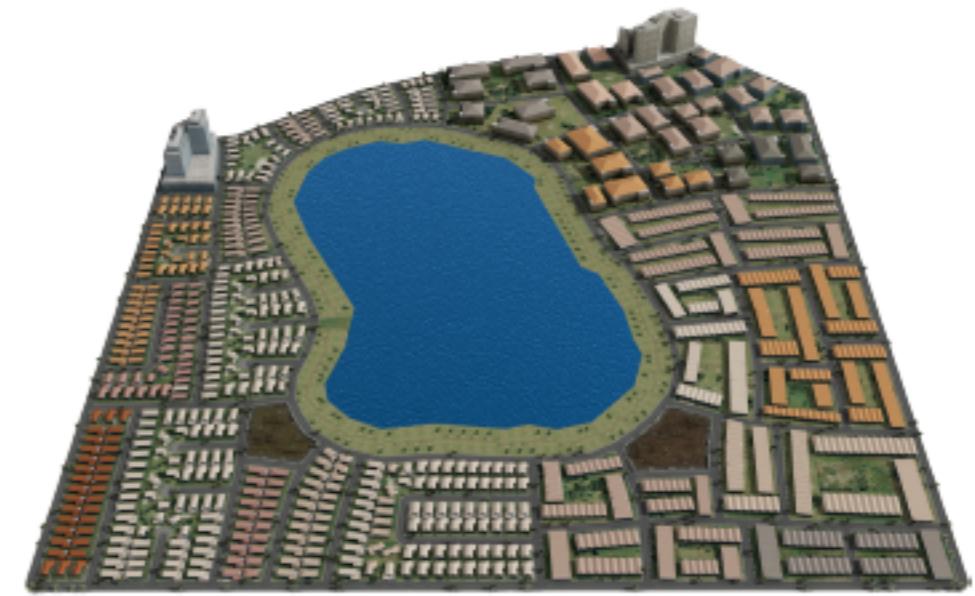
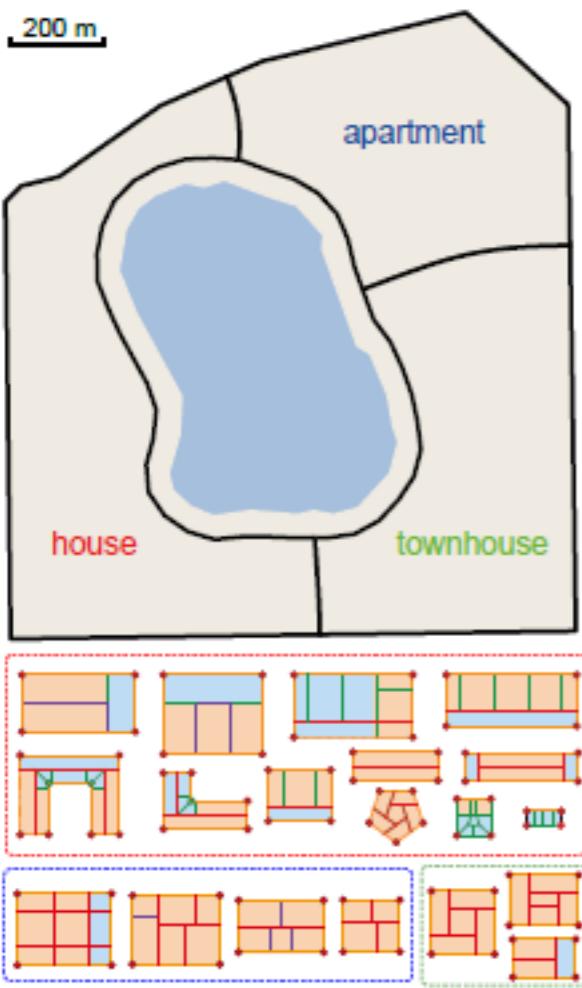


[Pietroni et al. 2015]

CROWD SIMULATION

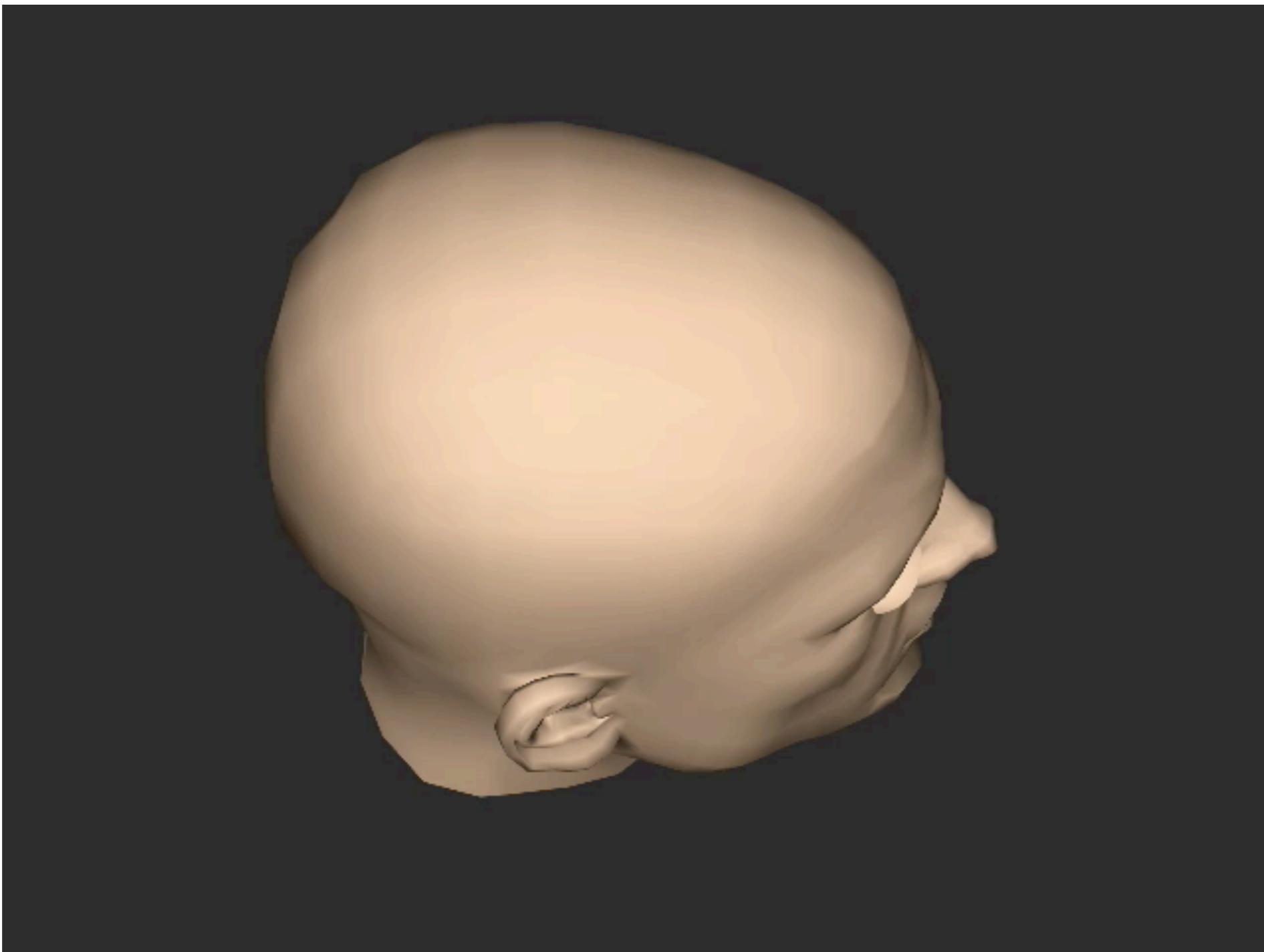


URBAN PLANNING



[Yang et al. 2013]

HAIR MODELING AND SCANNING



[Paris et al. 2008]