

# APPLICATIONS

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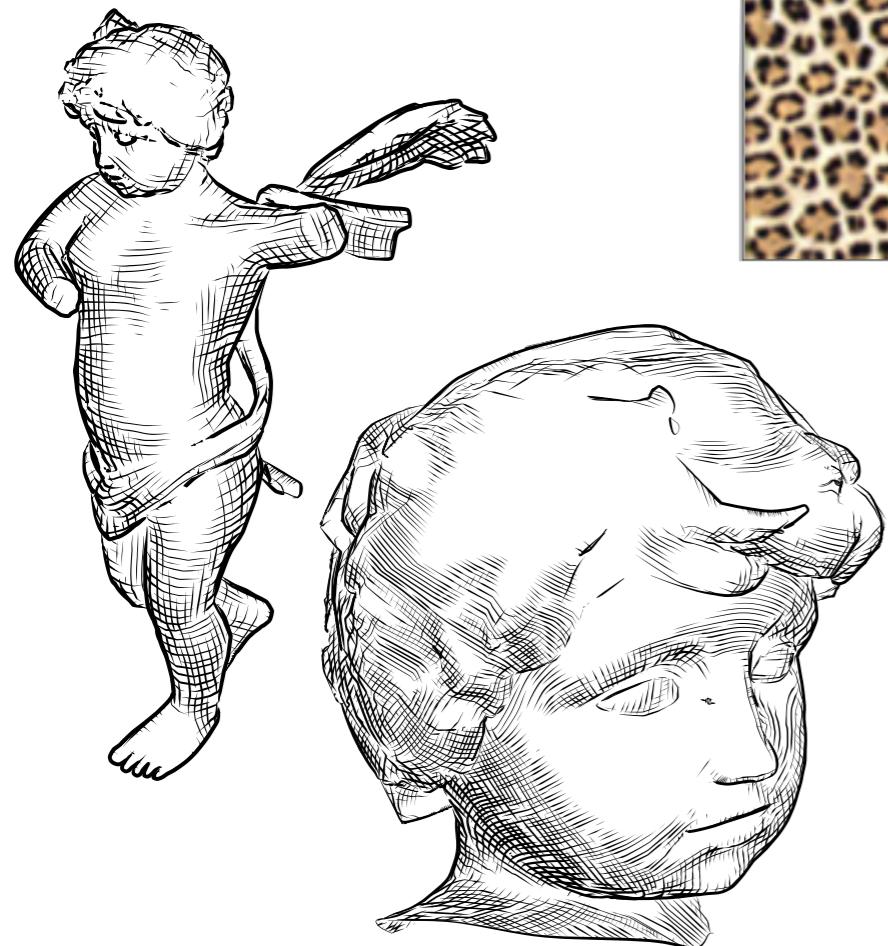
*Olga Diamanti*

*Geometric Computation Group*

*Stanford University*

# NON-PHOTOREALISTIC RENDERING

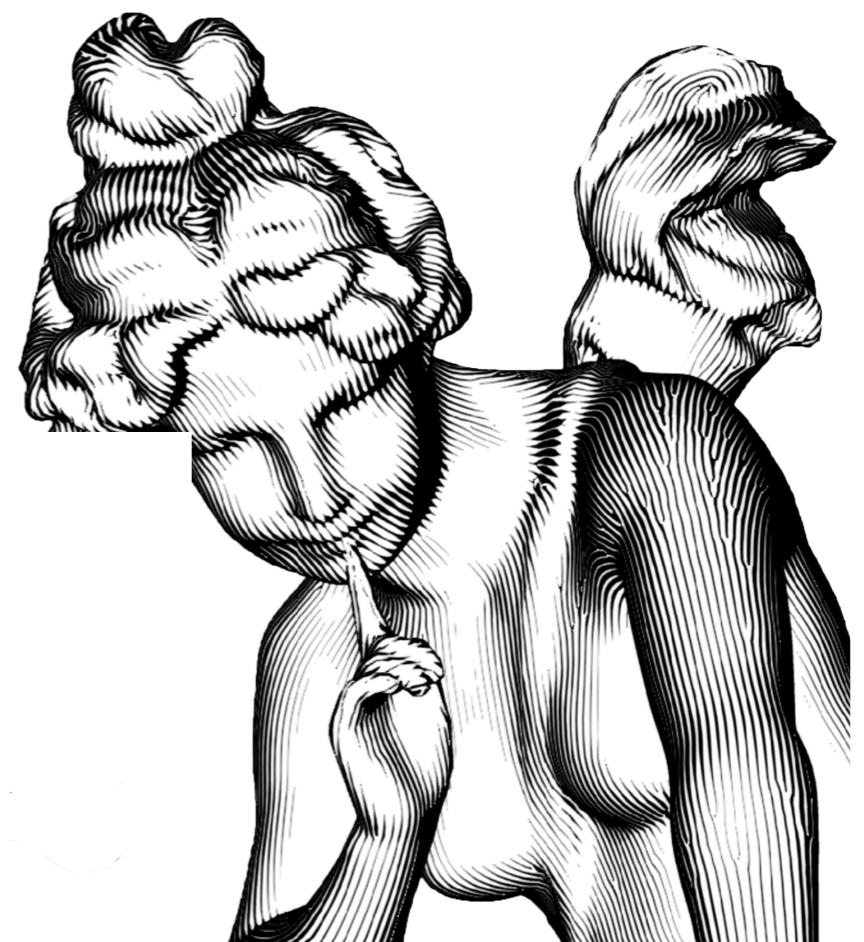
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[Hertzmann & Zorin 2000]



[Zhang et al. 2003]



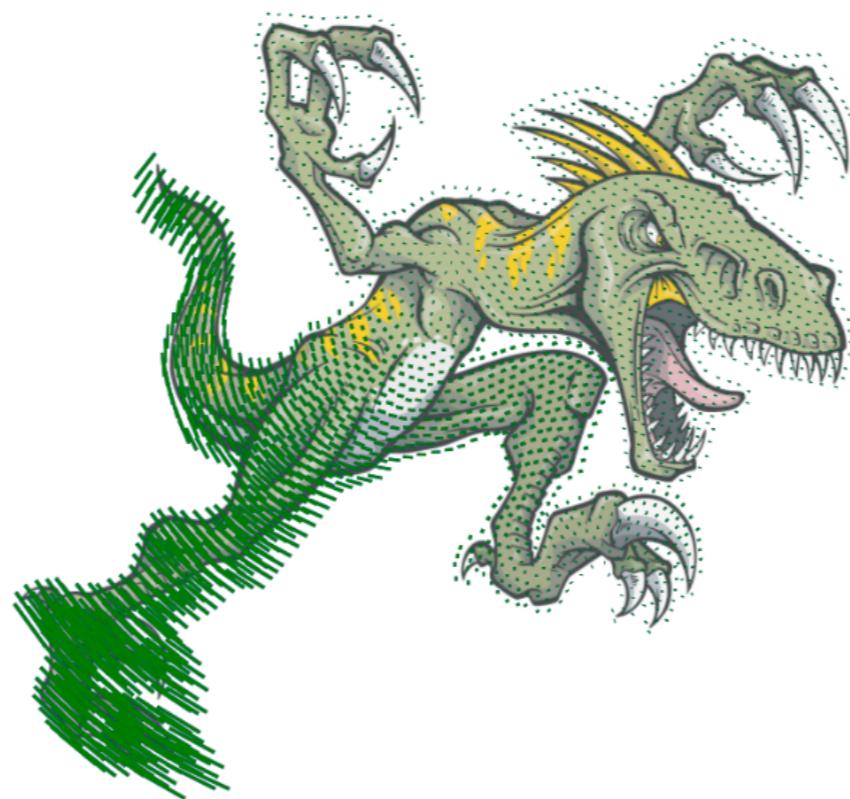
[Knöppel et al. 2015]

# IMAGE DEFORMATION – KILLING FIELDS

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input shape



displacement field



modified shape

[Solomon et al. 2011]

# IMAGE DEFORMATION – KILLING FIELDS

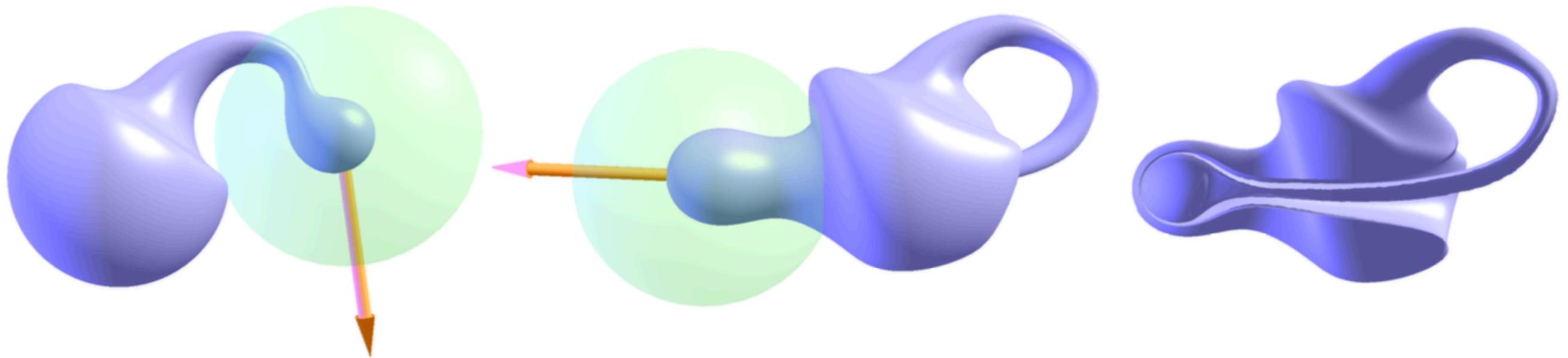
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[Solomon et al. 2013]

# SHAPE DEFORMATION IN AMBIENT SPACE

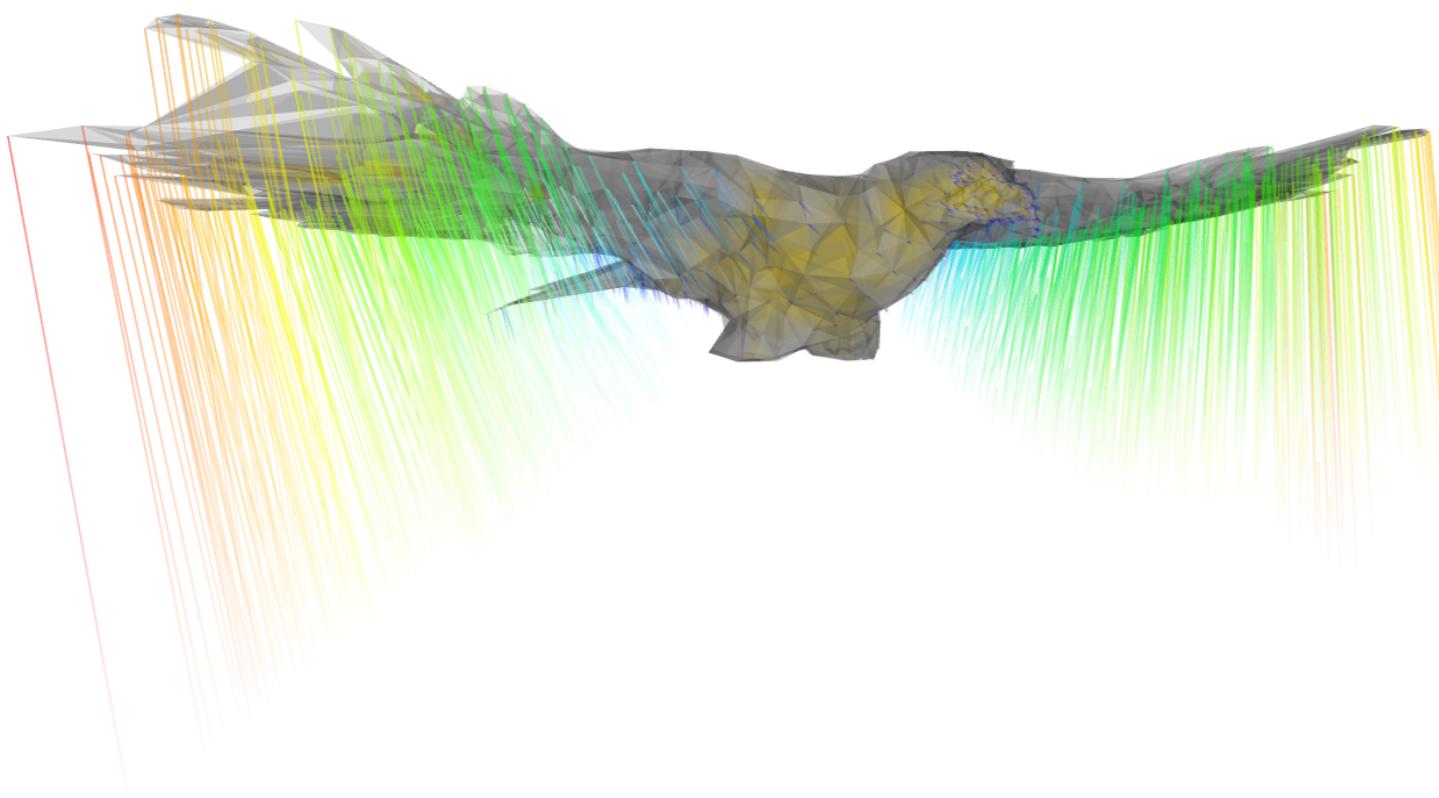
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[Funck et al. 2006]

# SHAPE DEFORMATION

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[Martinez Esturo et al. 2014]

# DATA ANALYSIS

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[Ferreira et al. 2013]

# CULTURAL HERITAGE

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[Pietroni et al. 2011]

# CULTURAL HERITAGE

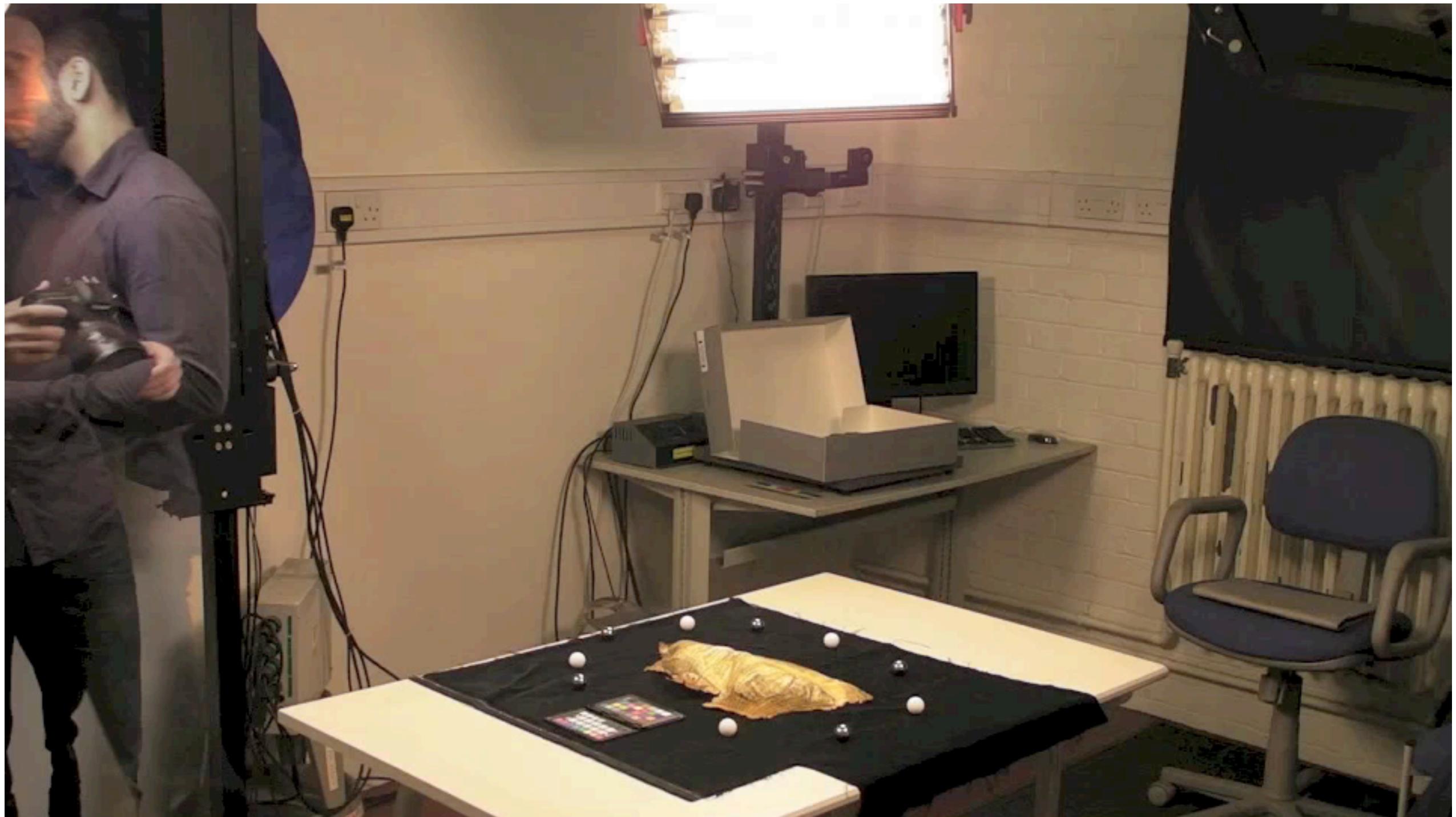
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[Pal et al. 2014]

# CULTURAL HERITAGE

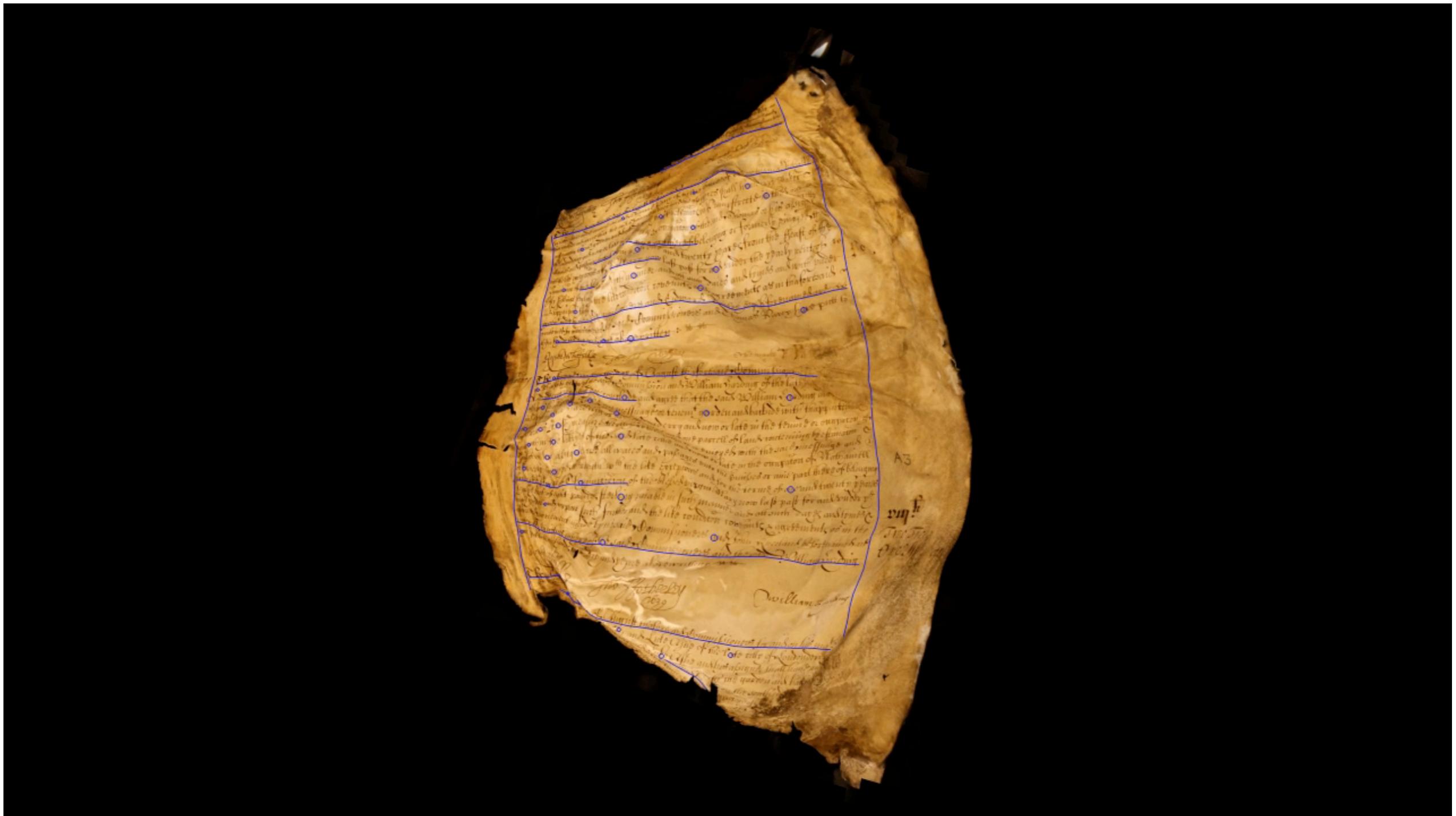
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[Pal et al. 2014]

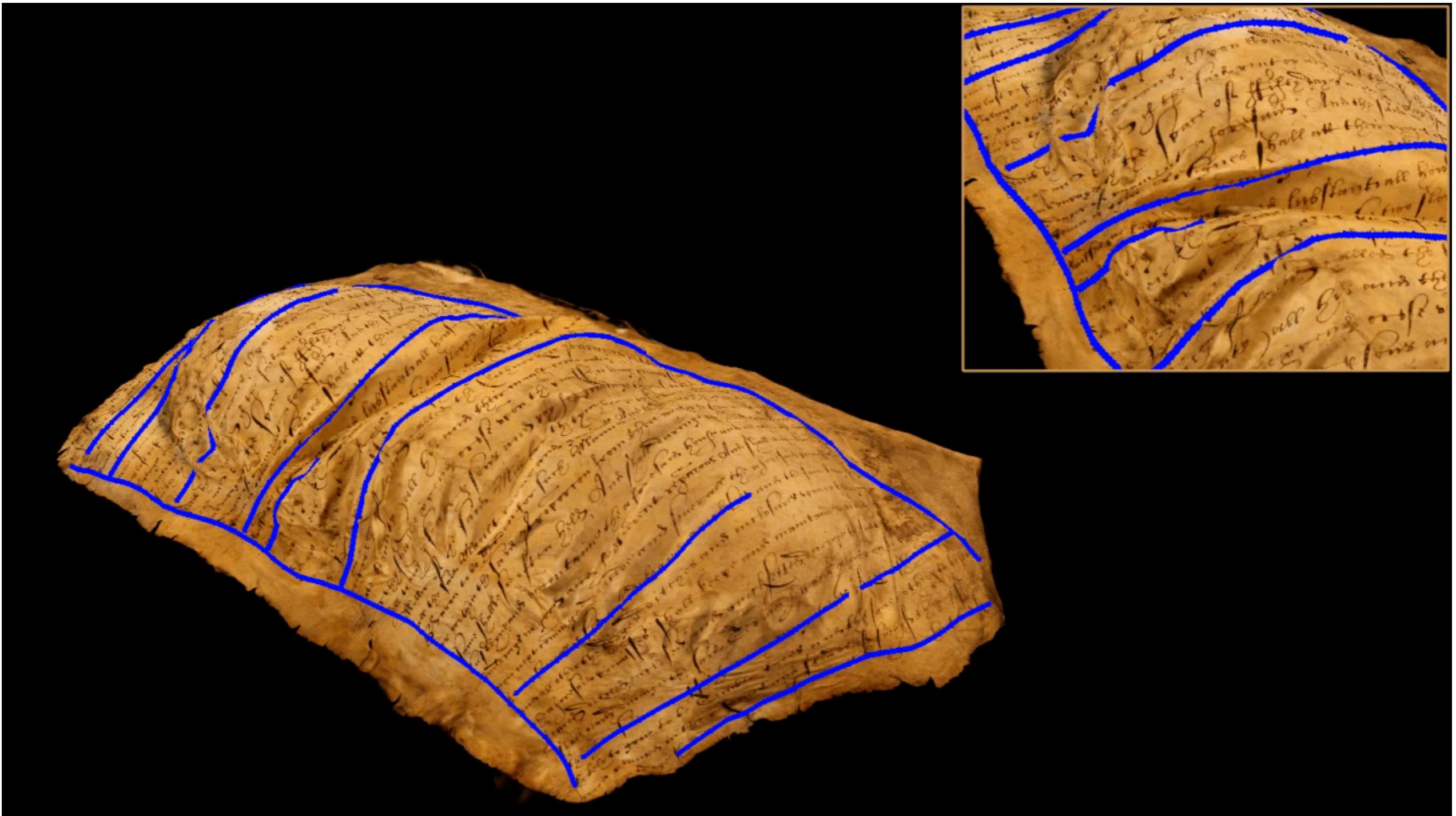
# CULTURAL HERITAGE

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# CULTURAL HERITAGE

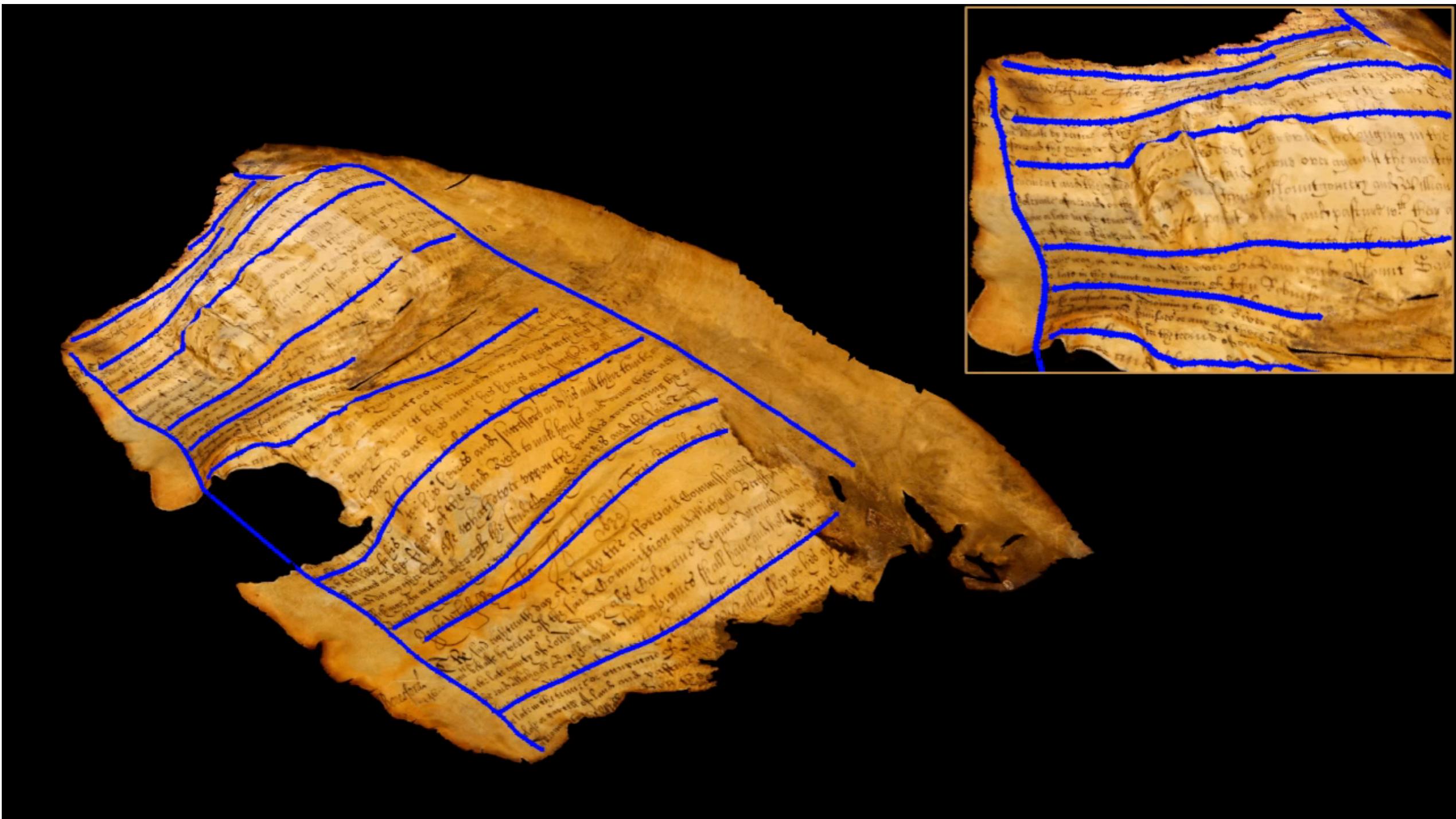
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[Pal et al. 2014]

# CULTURAL HERITAGE

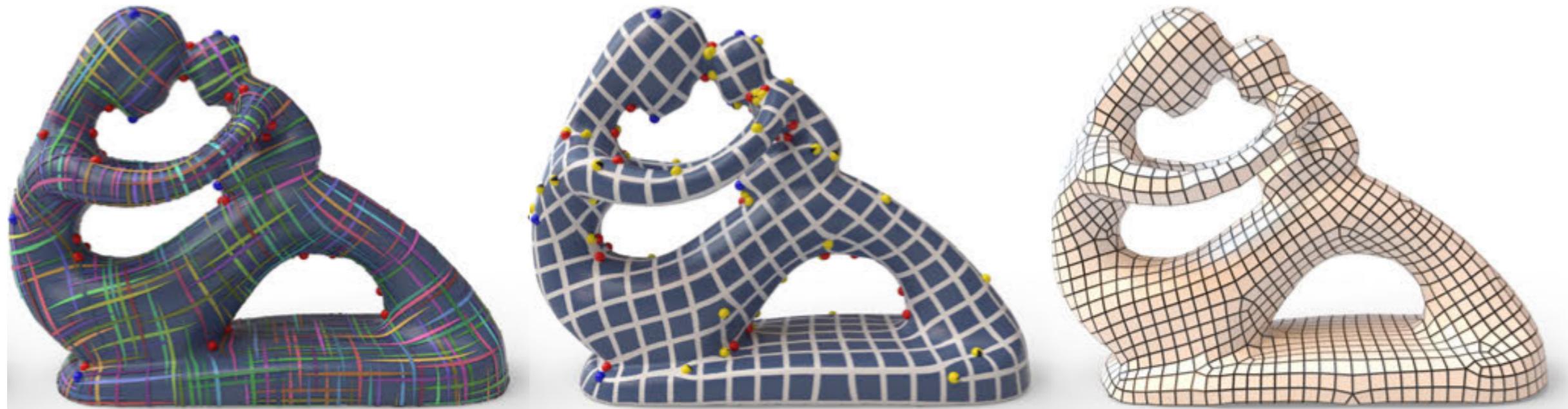
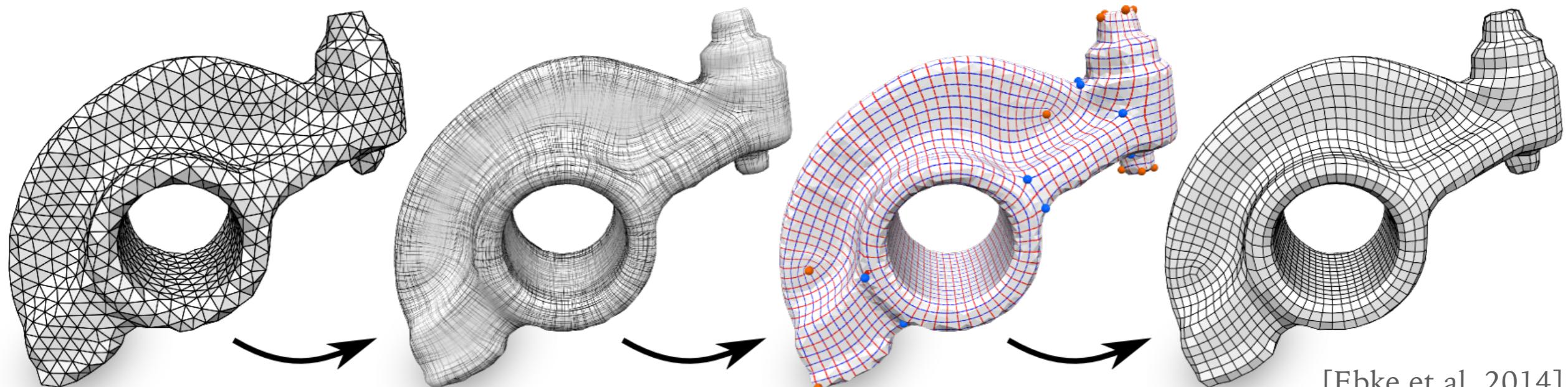
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[Pal et al. 2014]

# MESHING (DEMO)

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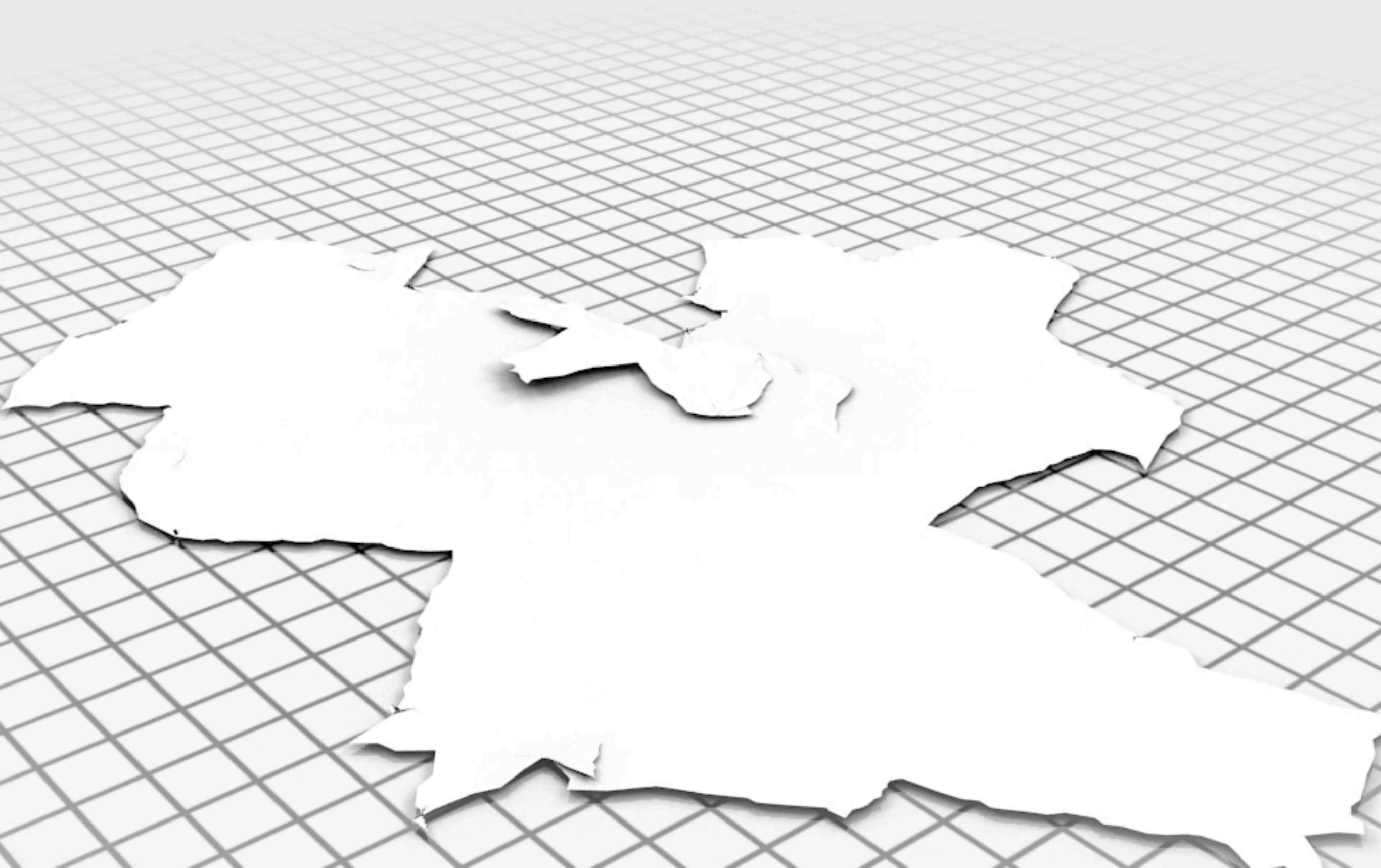
[courtesy of Hans-Christian Ebke]



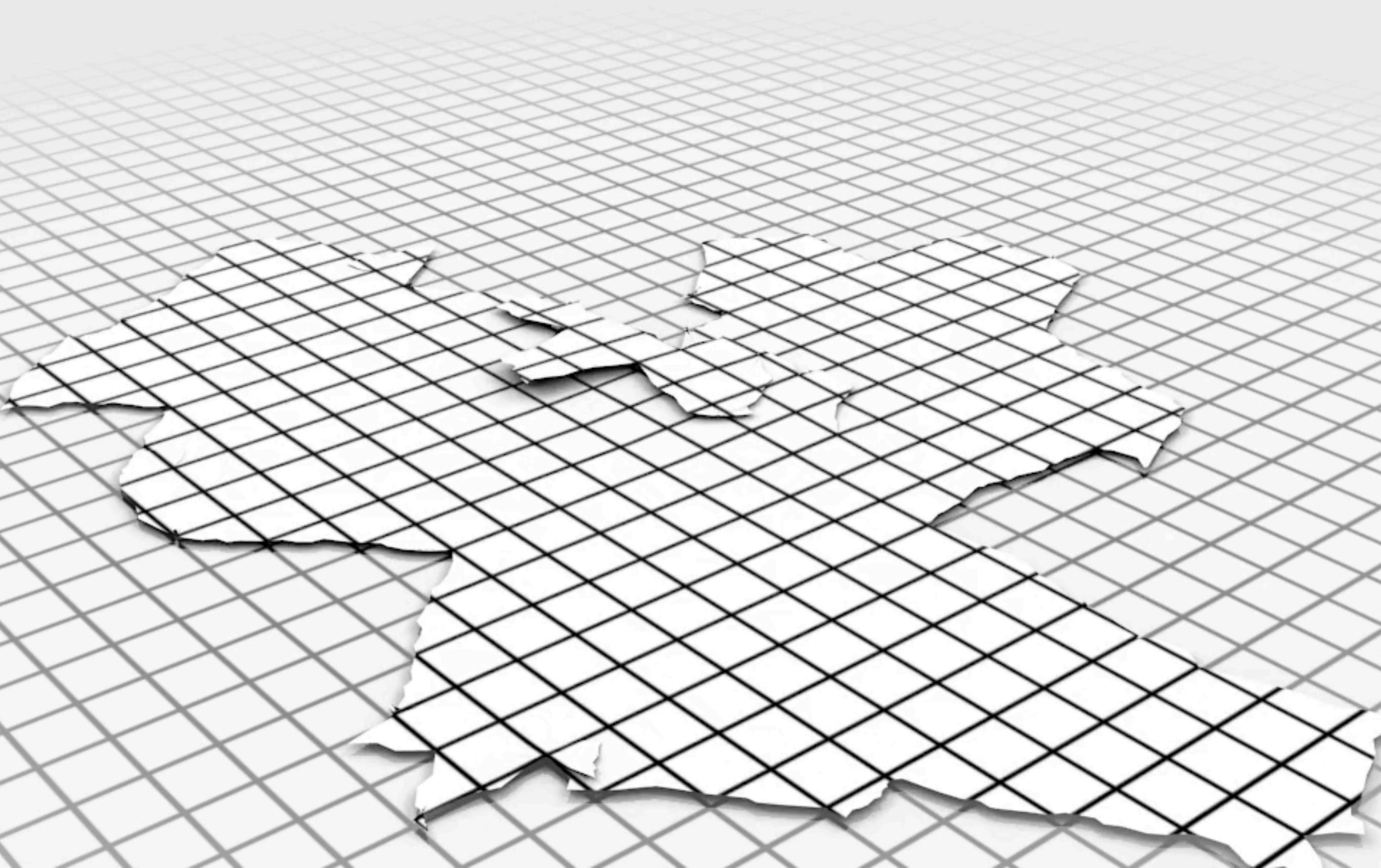
[courtesy of Hans-Christian Ebke]



[courtesy of Hans-Christian Ebke]



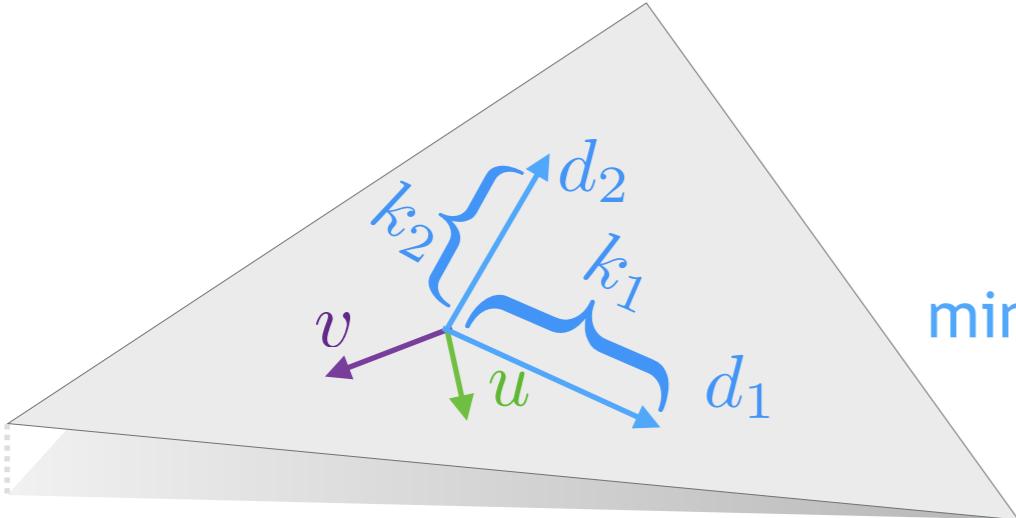
[courtesy of Hans-Christian Ebke]



# **QUAD MESHING DEMO**

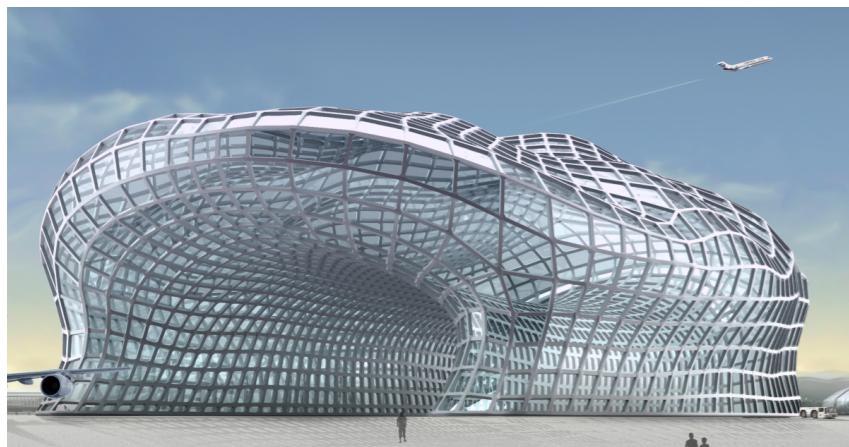
# CONJUGATE DIRECTION FIELDS – PLANAR MESHING

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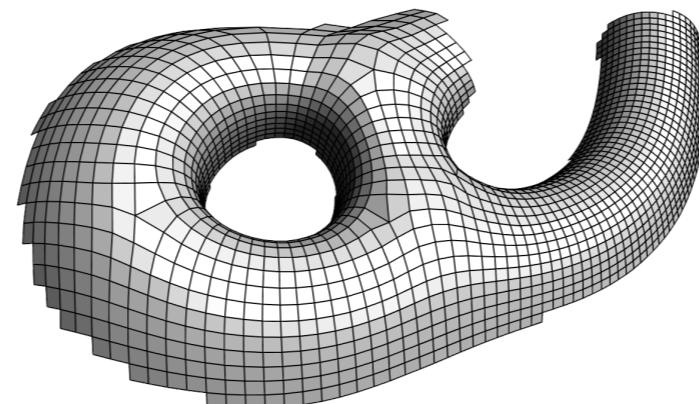


$$\kappa_1(u^T d_1)(v^T d_1) + \kappa_2(u^T d_2)(v^T d_2) = 0$$

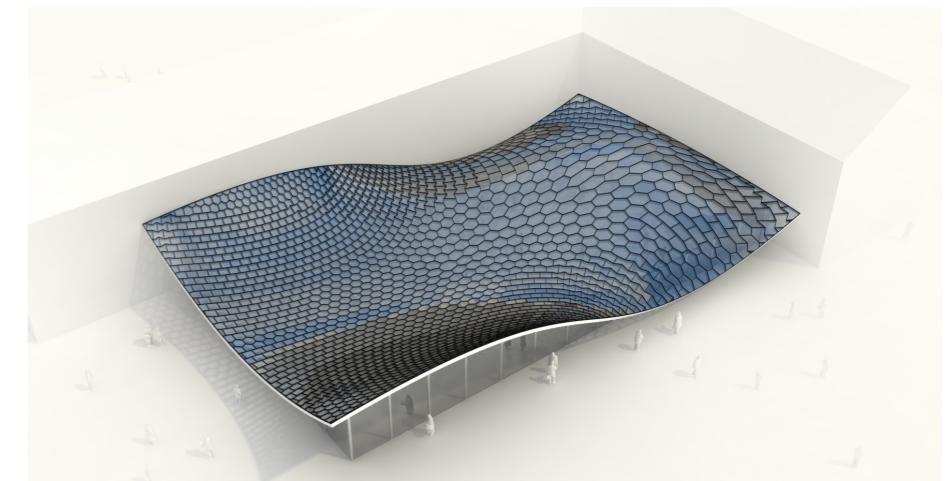
min/max curvatures      principal directions



[Liu et al. 2011]



[Diamanti et al. 2015]



[Vaxman et al. 2015]

# FORCE FLOW FOR MASONRY DESIGN

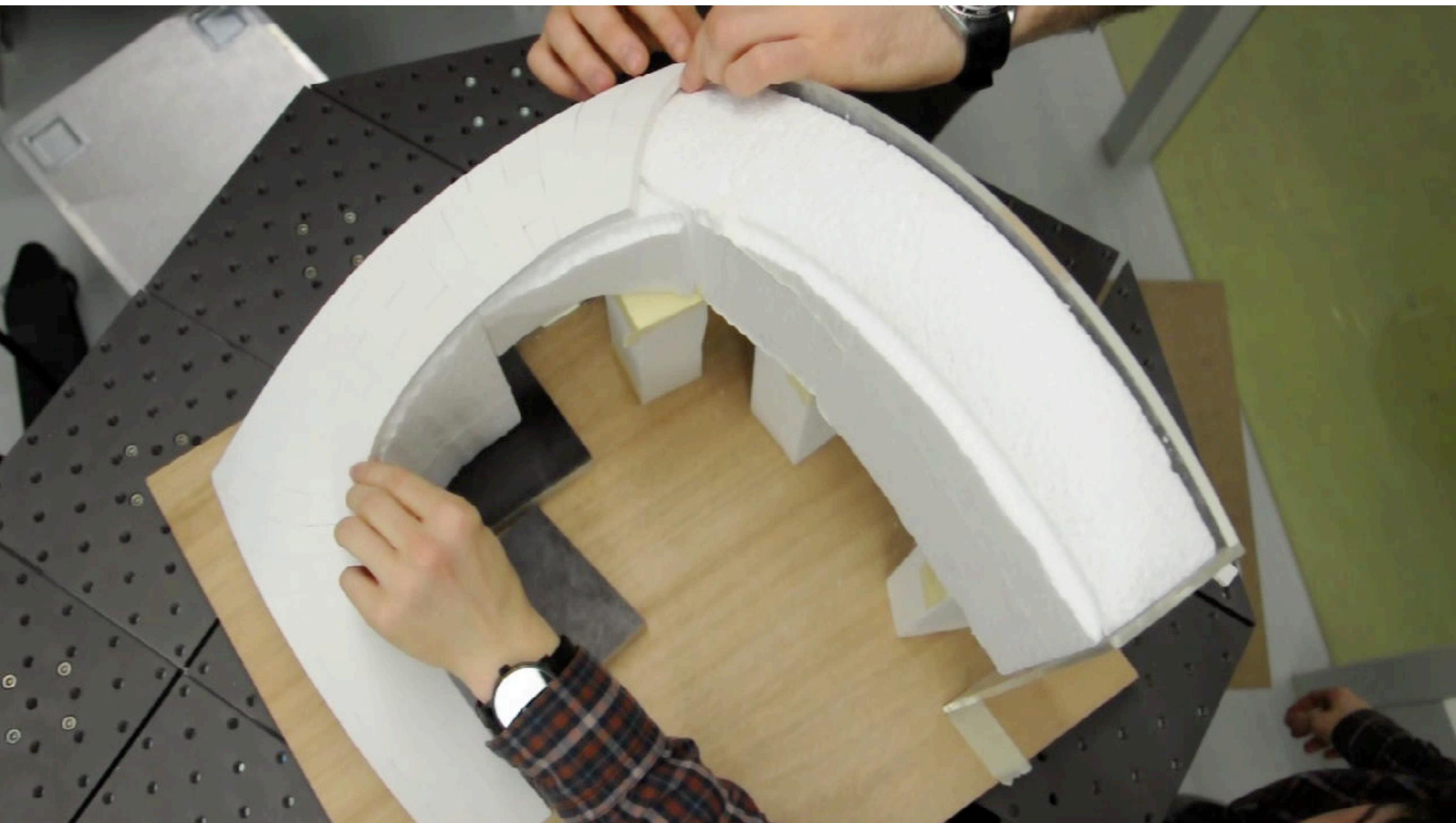
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Alfred Waterhouse's **Natural History Museum**, London, UK

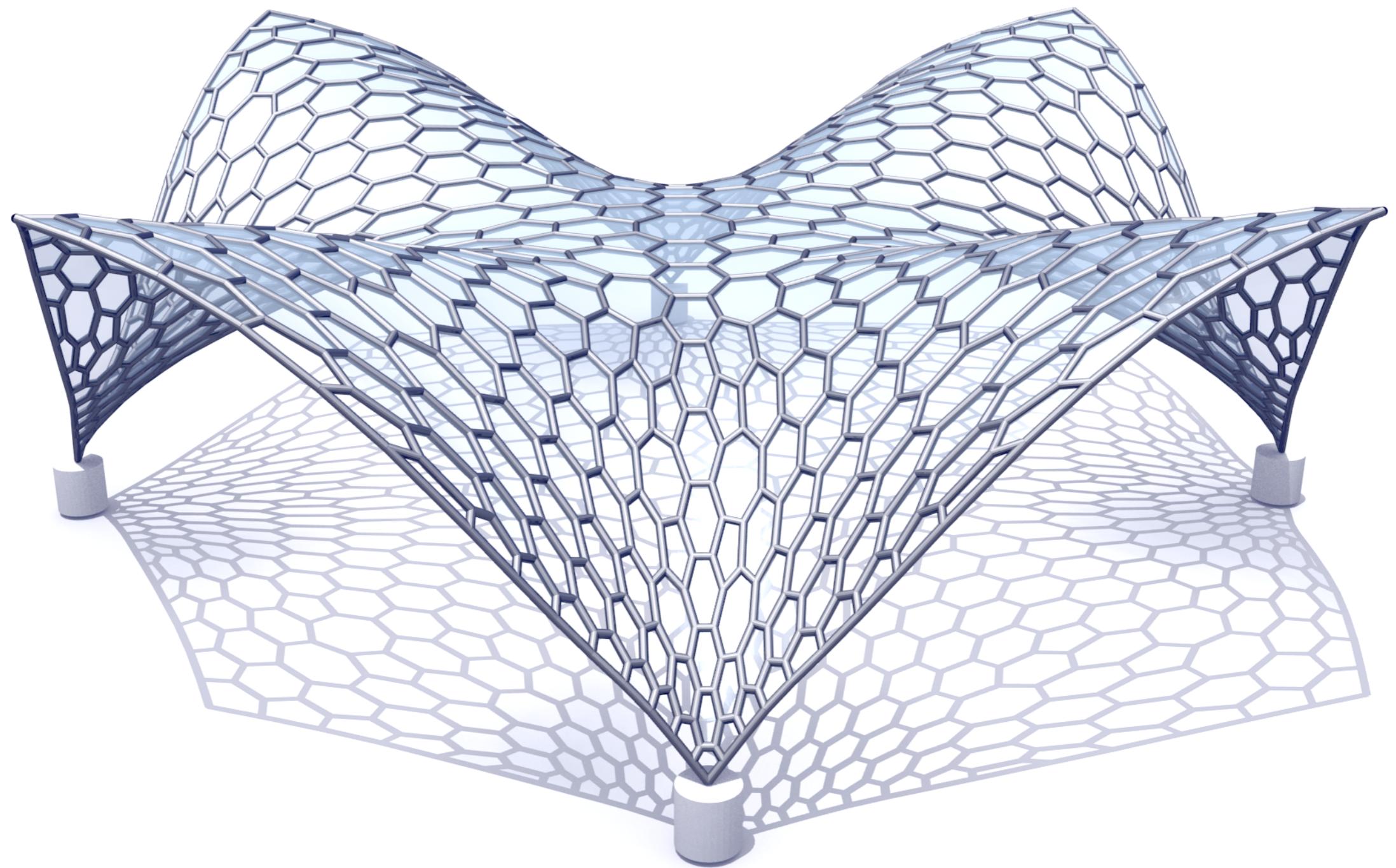
# FORCE FLOW FOR MASONRY DESIGN

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# STRUCTURAL DESIGN

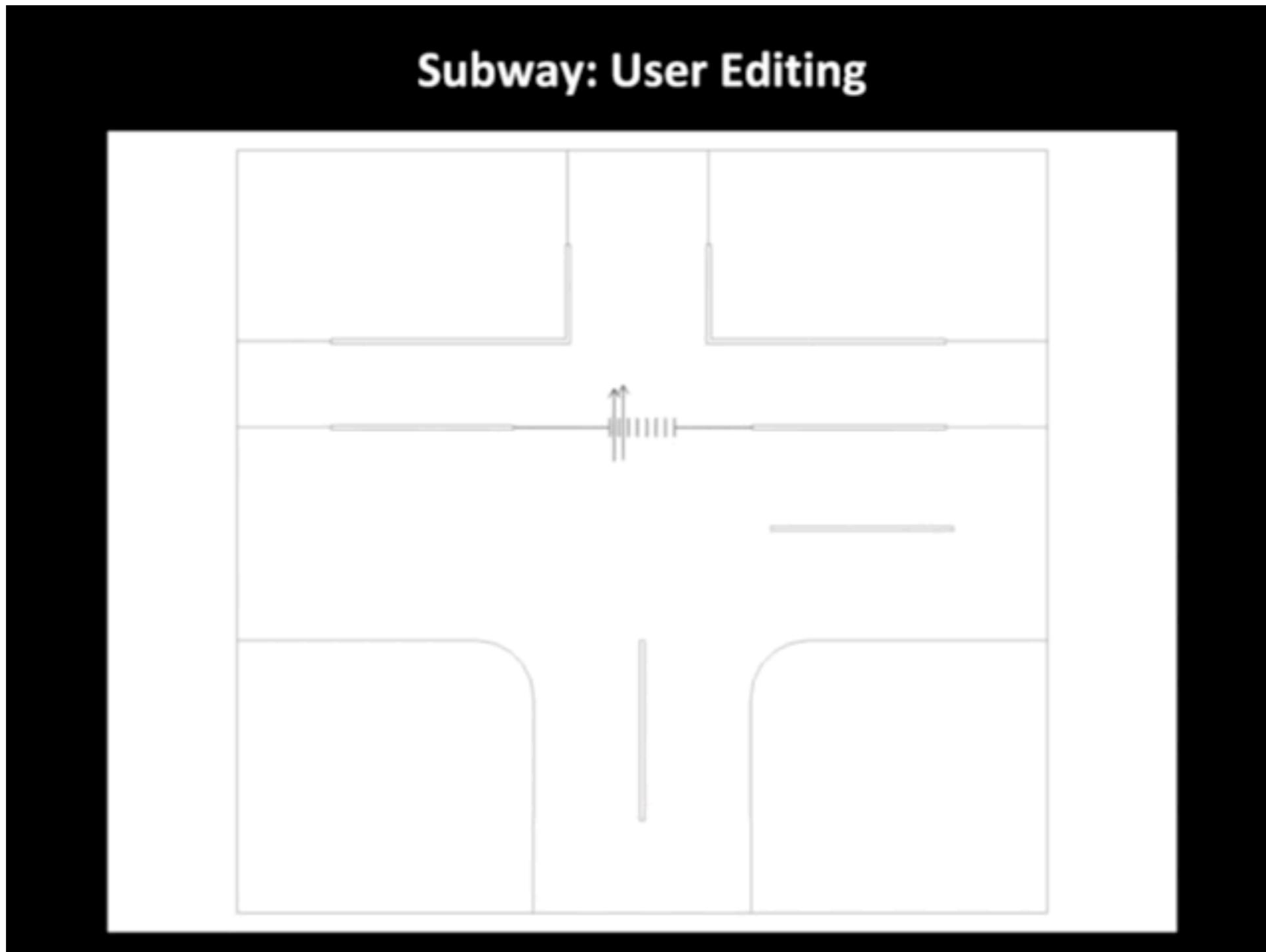
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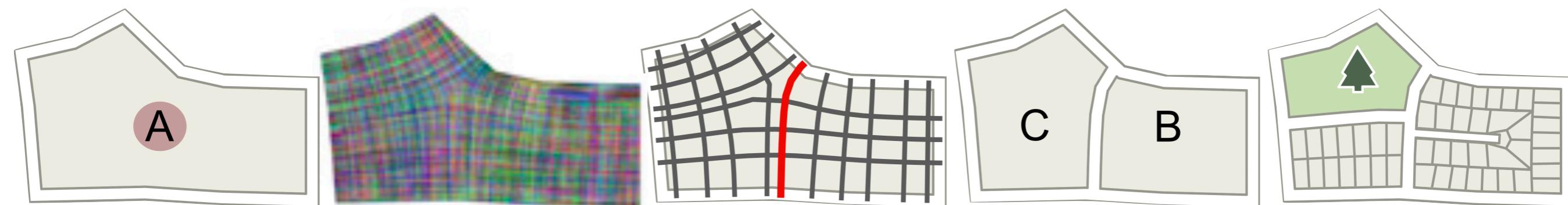
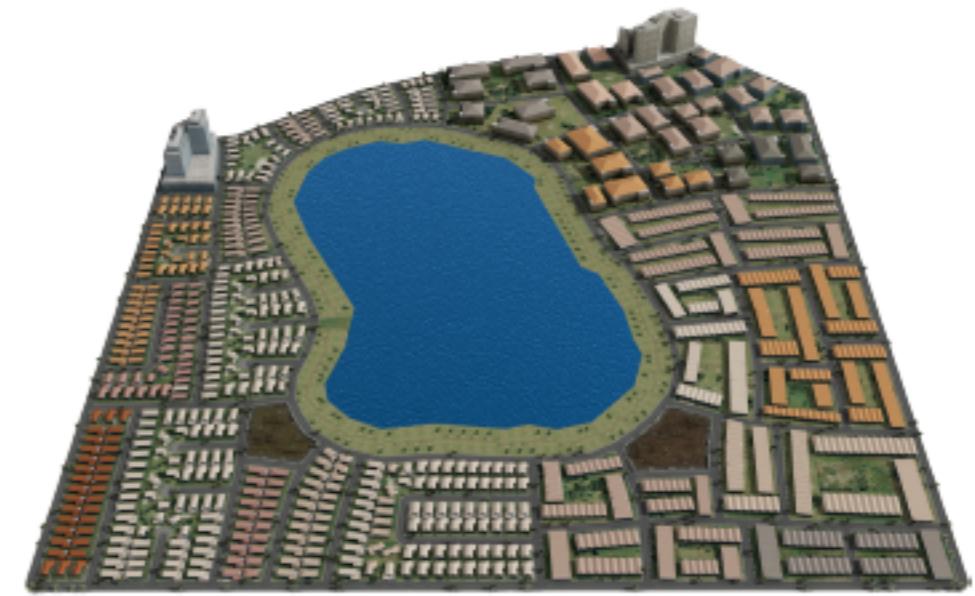
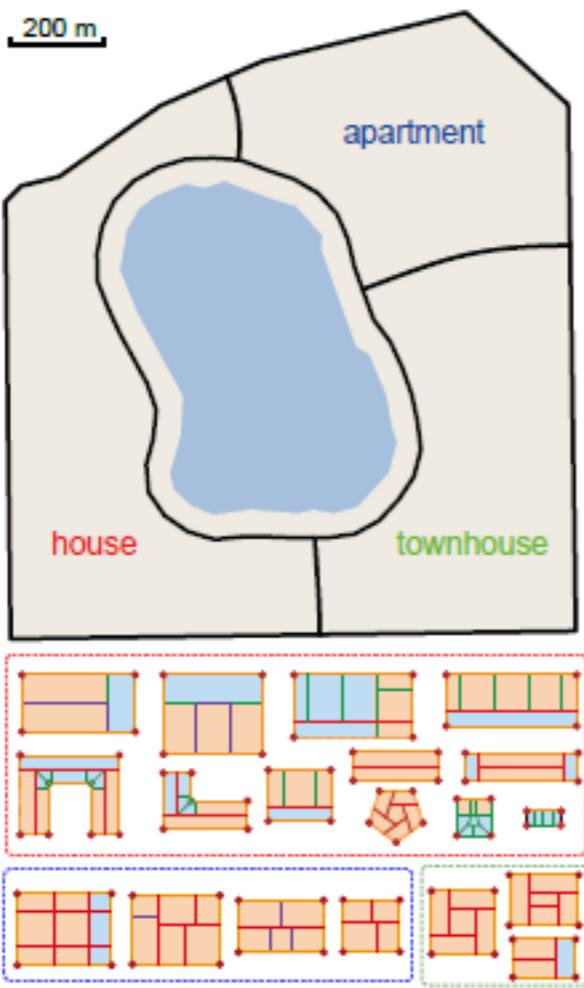
[Pietroni et al. 2015]

# CROWD SIMULATION

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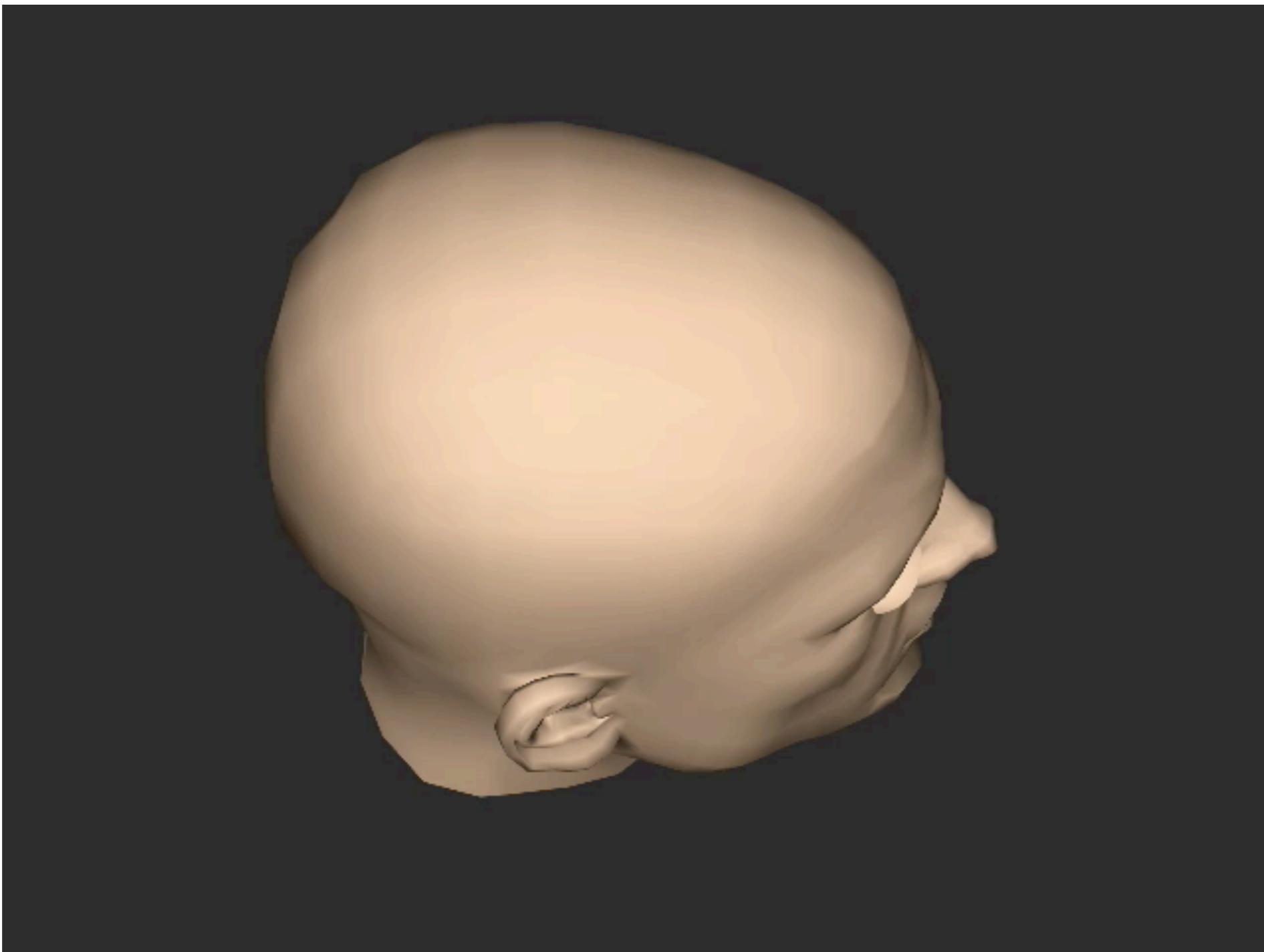
# URBAN PLANNING



[Yang et al. 2013]

# HAIR MODELING AND SCANNING

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[Paris et al. 2008]