From medical imaging to finite element analysis

Mesh generation for complex geometries
IA-FEMesh tutorial and exercises

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BIOCAD course
University of Lorraine
IA-FEMESH - PLAN

- interface
- loading data
- building blocks
- mesh
- Young modulus determination

[from own resources]
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IA-FEMESH ON-LINE

- hand CT (phalanx bone)
IA-FEMESH EXERSICES

- using IA-FEMesh create volume mesh of clavicle, red blood cell and humerus and save it to INP file (input surface geometry provided on website)
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Mesh generation for complex geometries
IA-FEMesh practical assignment

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IA-FEMESH
OFTEN MISTAKES

- co-linear or diagonally stretched elements
IA-FEMESH

OFTEN MISTAKES

- high aspect ratio (~3)
IA-FEMESH
OFTEN MISTAKES

- high aspect ratio (~3)
IA-FEMESH
OFTEN MISTAKES

- high aspect ratio (zones)
IA-FEMESH
OFTEN MISTAKES

- curved surface deviation
IA-FEMESH

OFTEN MISTAKES

- curved surface deviation
IA-FEMESH

OFTEN MISTAKES

- check elements inside the volume
IA-FEMESH PRACTICAL ASSIGNMENT

- using IA-FEMesh create volume mesh of femur, mandible or liver and save it to INP file (input surface geometry provided on website)

- send INP file to tomasz.gajewski@put.poznan.pl
  e-mail title: <students_name_surname>_mi2fea-mesh

- deadline: check on website
REFERENCES


2. User’s Manual IA-FEMesh v.1.0, MIMX Laboratory, Center for Computer Aided Design, The University of Iowa, available online: www.ccad.uiowa.edu/mimx/IA-FEMesh