CT, µ-CT and surface scan of a "bâton percé"

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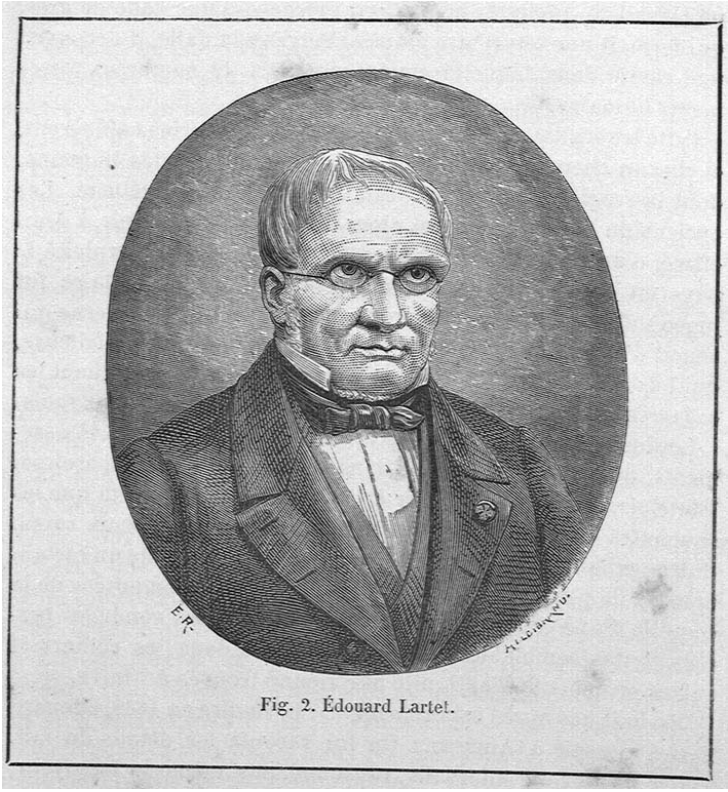


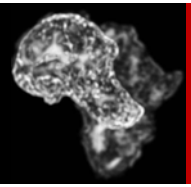
Fig. 2. Édouard Lartet.

Edouard Lartet

1801-1871

Abri de la Madeleine

Abri
Grotte
Mégalithe
Site de plein air ou trouvaille isolée
Musée
Parc
Montignac
Dépôt de Thonac
Lascaux II
Régourdou
Lascaux
Le Thot
Dépôt de Fleurac
Belcayre
Rouffignac
La Souquette
Le Moustier
Blanchard
Le Roc du Barbeau
Labattut
Reverdit
Le Ruth
La Roque-St-Christophe
La Madeleine
Villepin
Préhisto Parc
La Micoque
Pageyral
Laussel
Laugerie-Haute
Laugerie-Basse
La Grèze
La Ferrasserie
Cro-Magnon
Pataud
Combarelles
Cap Blanc
Gorge d'Enfer
Richard
La Calévie
Les Eyzies
Font de Gaume
Les Partisans
Bara-Bahau
St-Cirq-du-Bugue
Guilhem
Bernifal
Le Bugue
La Mouthe
Paunat
Sarlat
0
4 km



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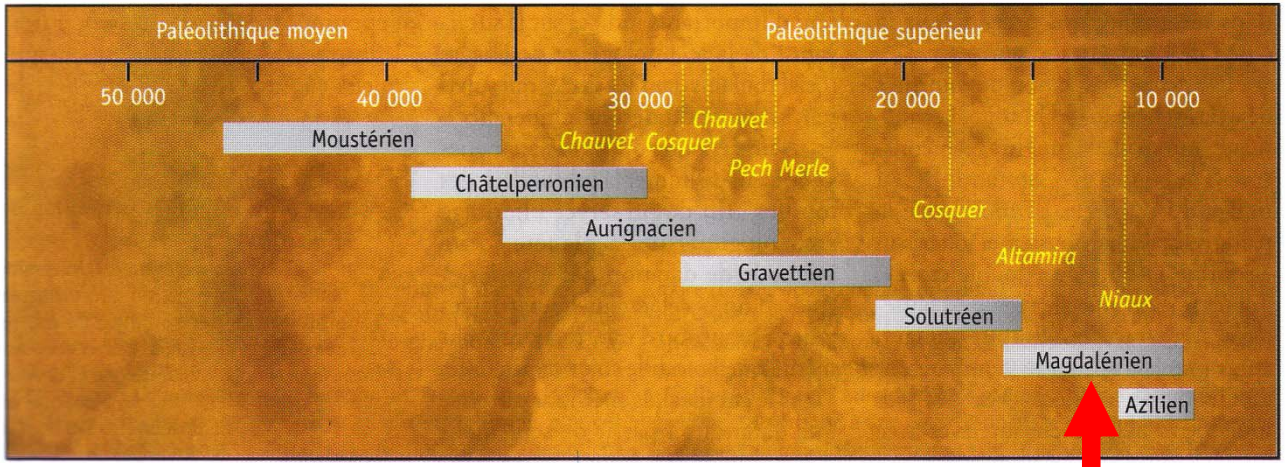

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3D Reconstruction and Analysis of a "bâton percé"

Description:

⇒ "Bâton" percé from the site La Madeleine, France.

⇒ Separated into two pieces:

- Muséum of Toulouse,
- Musée des Antiquités Nationales de St Germain en Laye.

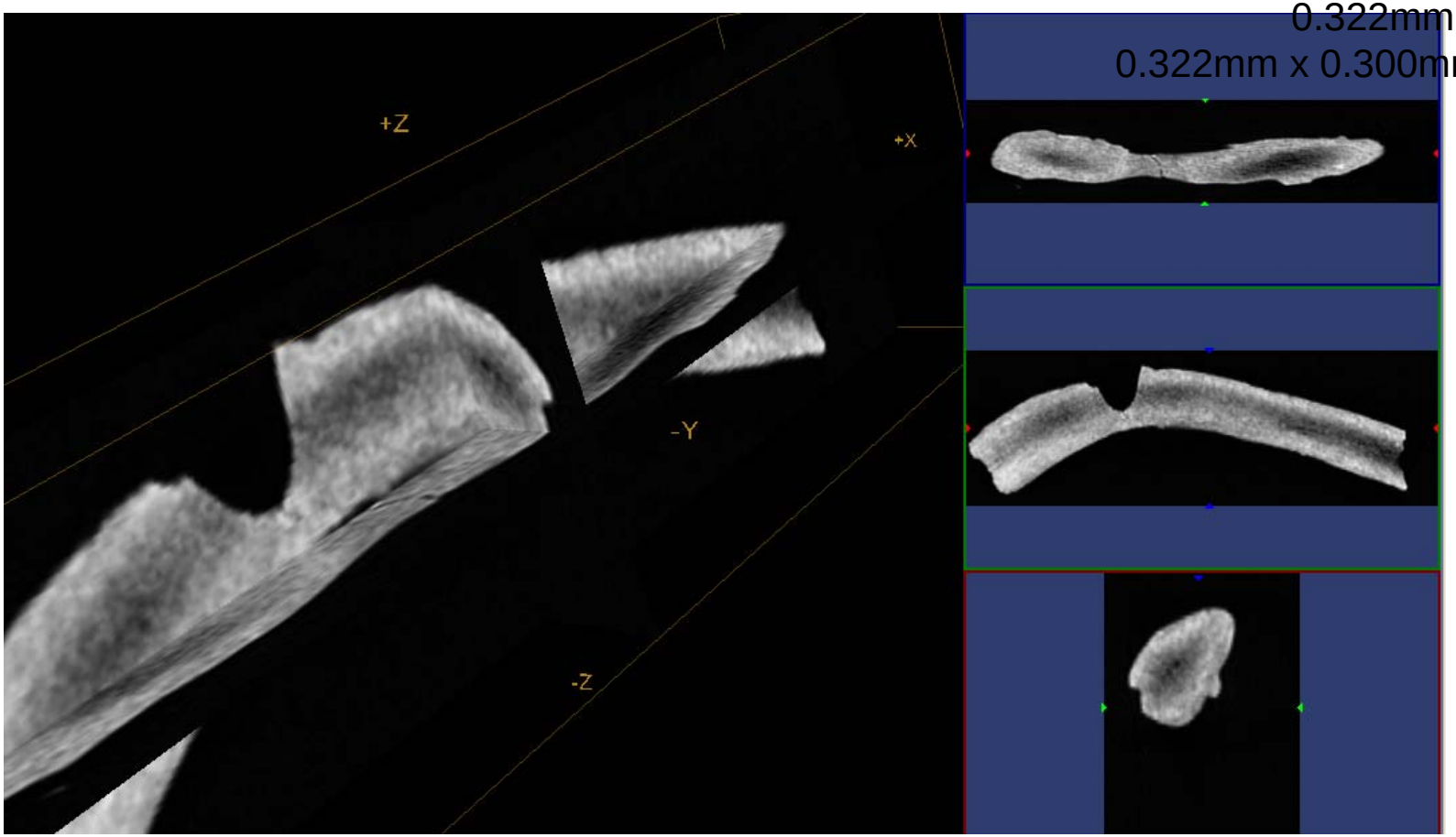
Objectives:

- Test several acquisition devices: CT-Scan, µ-Scan, 3D surface scan…
- 3D reconstruction to try to fuse the two pieces
- 3D analysis of engravings by image processing
- 3D museographic presentation

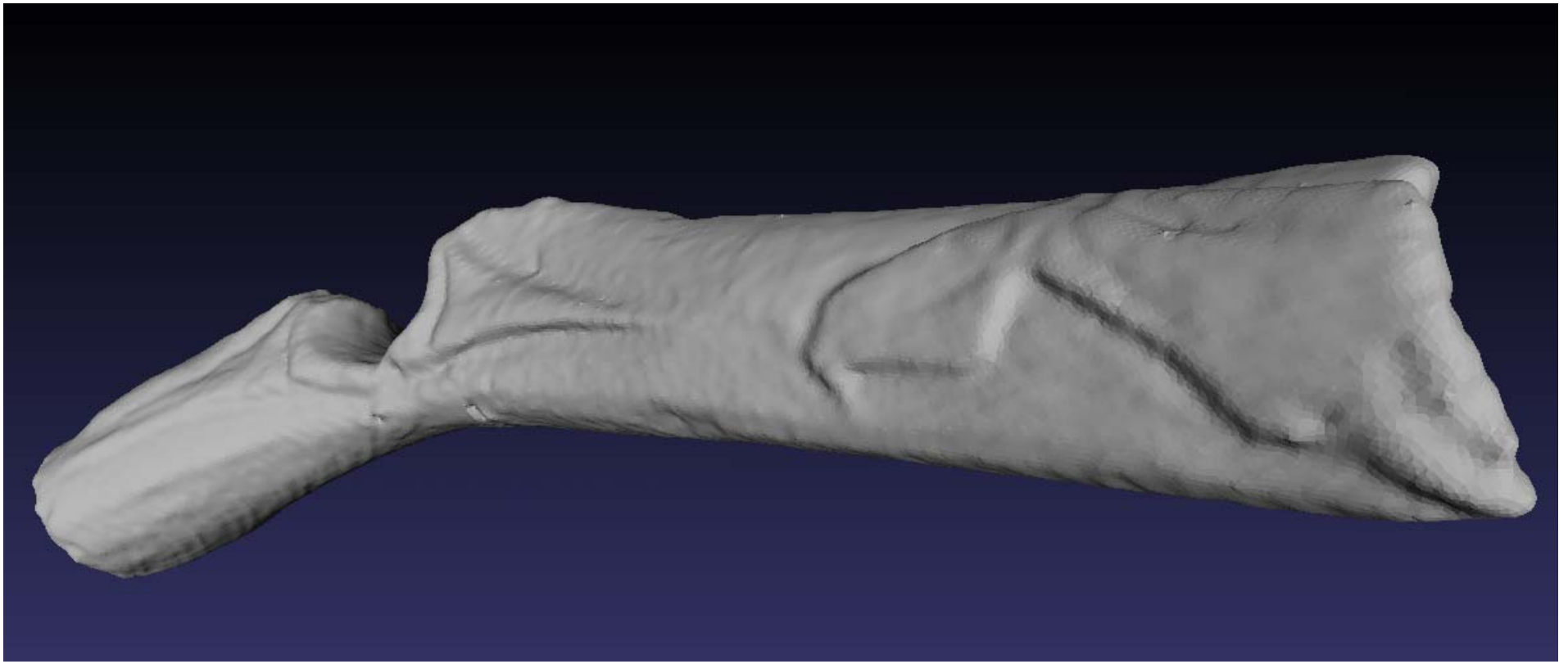
Acquisition by CT-Scan (1)

1. Original file:
   78Mb
   512 x 512 x 154
   0.322mm x 0.322mm x 0.300mm

2 After cropping the interesting ROI:
   7.6Mb
   382 x 82 x 125
   0.322mm x 0.322mm x 0.300mm



Acquisition by CT-Scan (2)



Isosurface computation + surface smoothing

102,173 vertices / 197,214 faces

Acquisition by µ-Scan (1)

Original file:

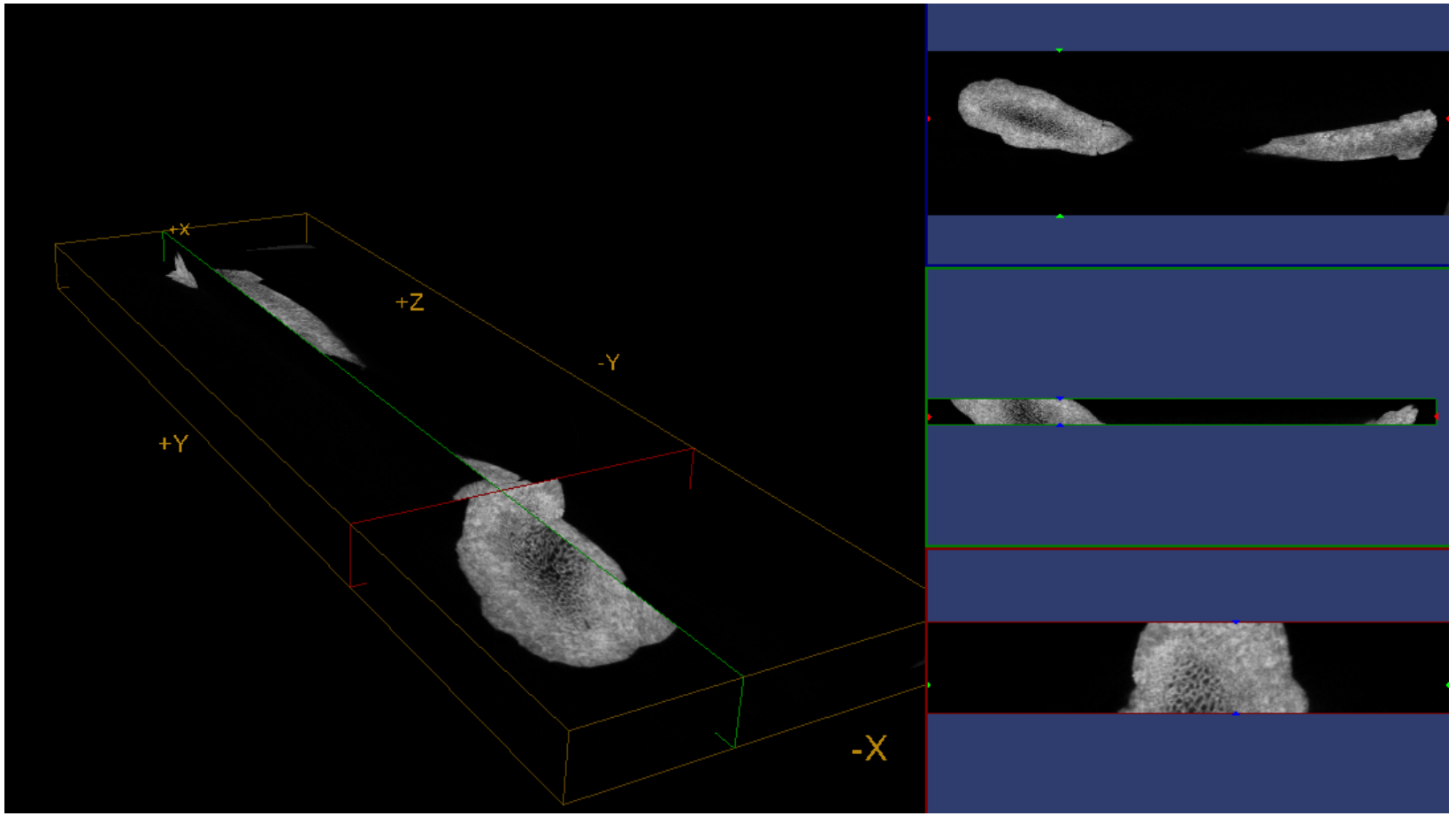
4761Mb

2780 x 836 x 908

0.041mm x 0.041mm x 0.041mm

⇒ Processing by blocks of 120 slices

⇒ Master's Thesis of Dikoore Jallo (IRIT/Muséum



Acquisition by µ-Scan (2)

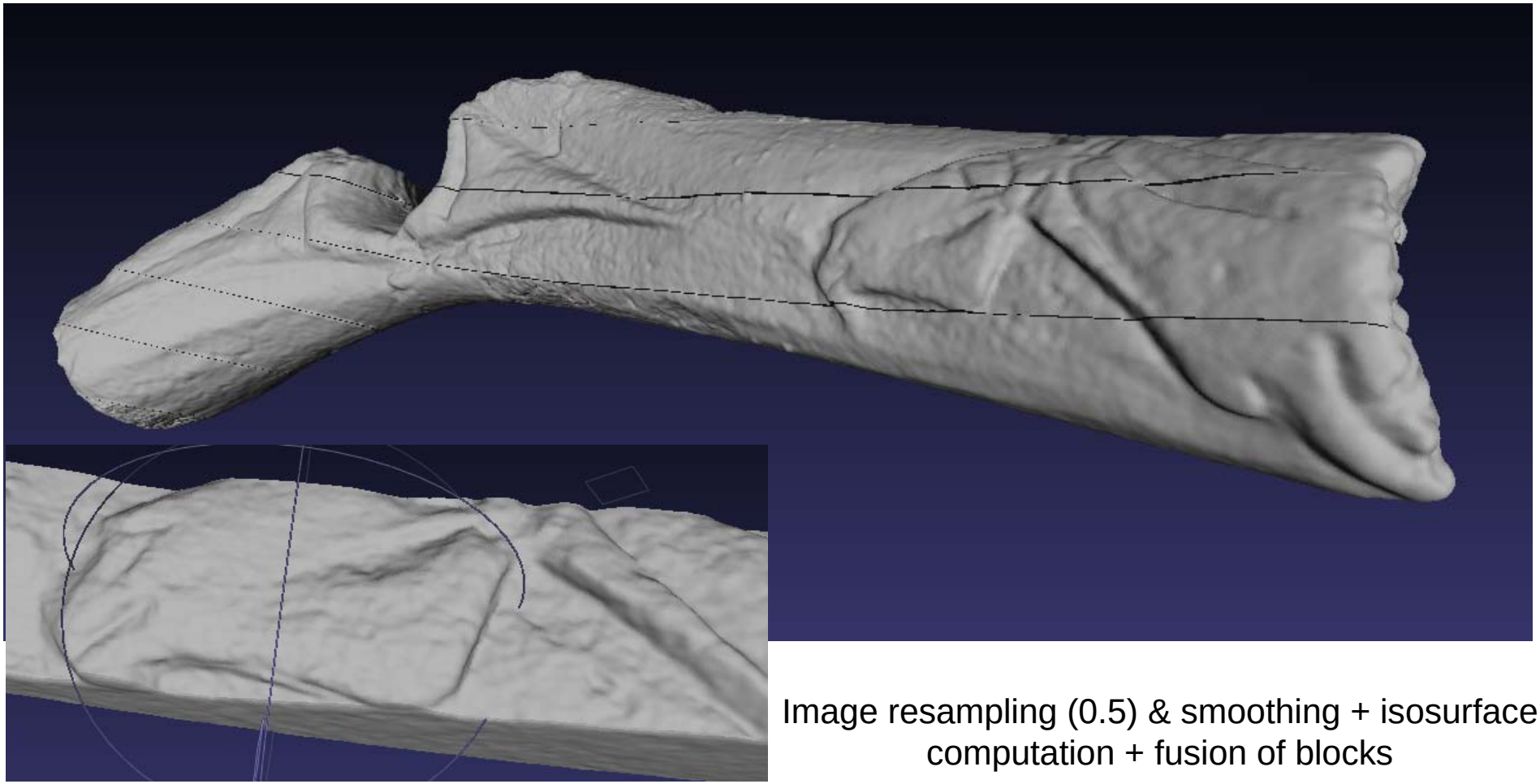
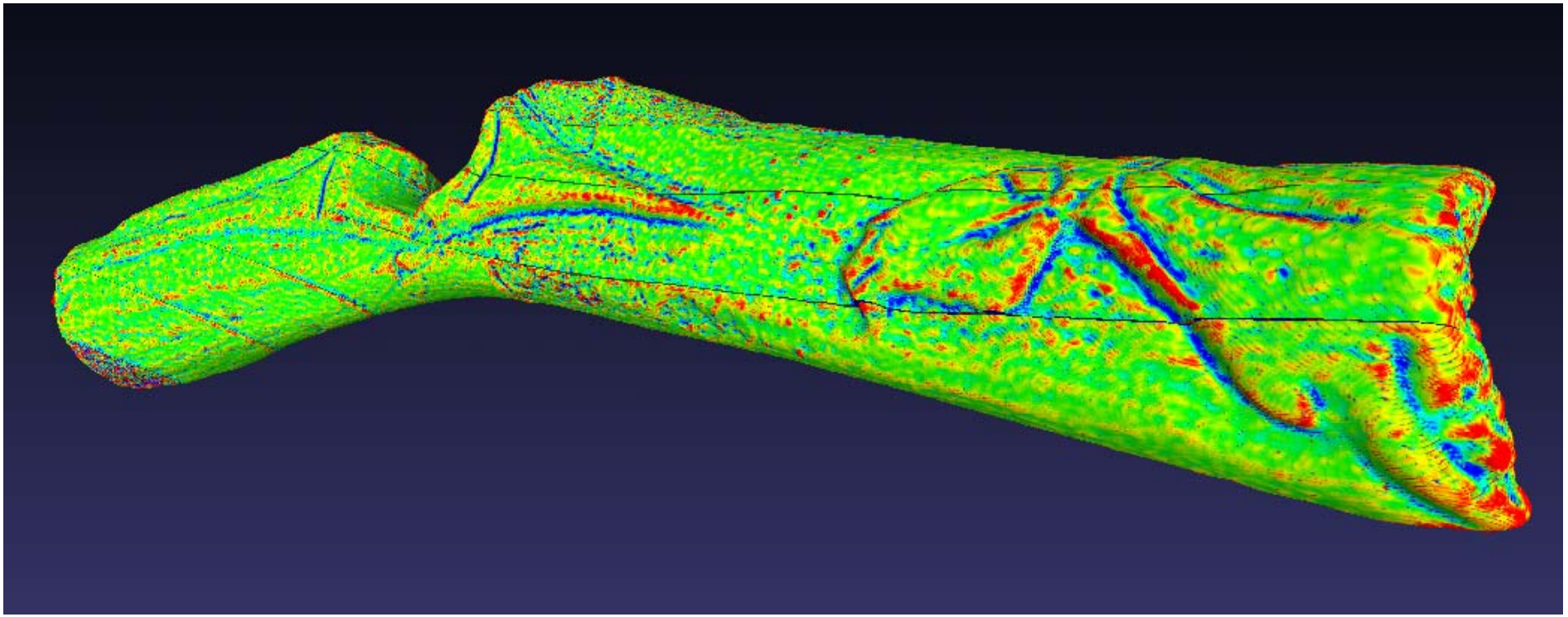


Image resampling (0.5) & smoothing + isosurface computation + fusion of blocks

1,503,555 vertices / 2,614,750 faces

Analysis of µ-Scan data



Mean curvature emphasizes the engravings.

Acquisition by surface scan Noomeo (1)

347,277 vertices / 329,210 faces

+ texture!