
As quality as possible, messy as necessary. Artificial Intelligence, Big Data and data quality
• Francesca Anichini, Gabriele Gattiglia
• University of Pisa

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Big Archeology Data
MAPPA Lab

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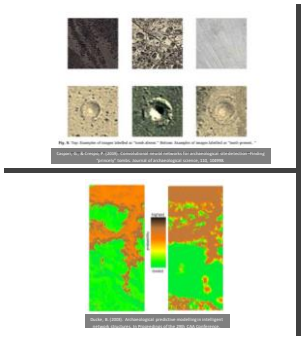

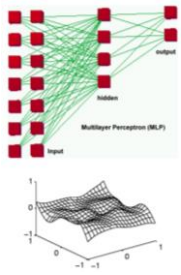

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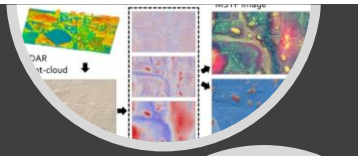

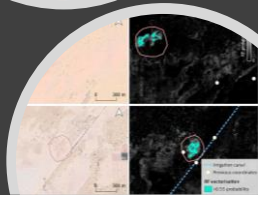

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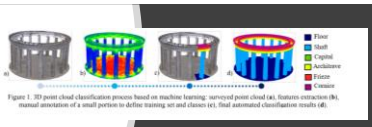
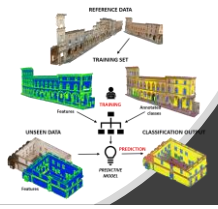


Figure 1. 3D point cloud classification process based on machine learning: surveyed point cloud (a), features extraction (b), manual annotation of a small portion to define training set and classes (c), final automated classification results (d).



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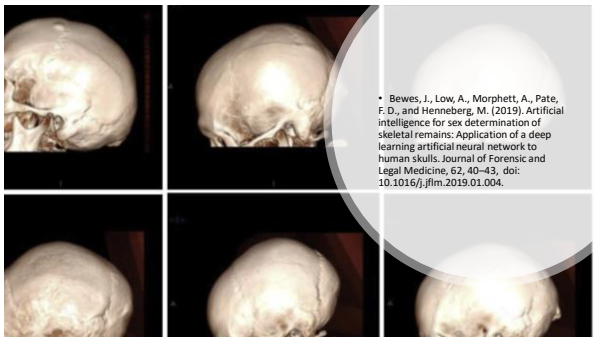

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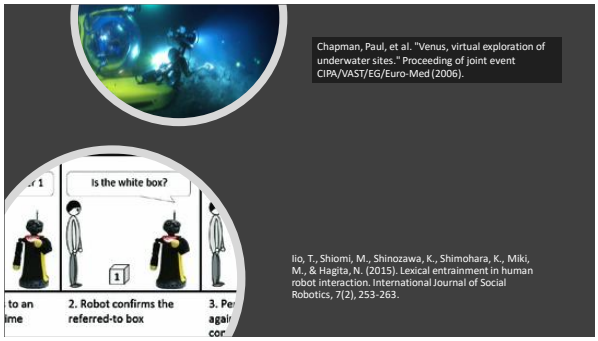

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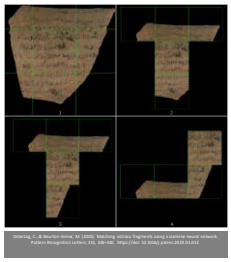

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ArchAIDE' aim was to demostrate that it was possible to create an automatica system to recognise sherds by a single photo

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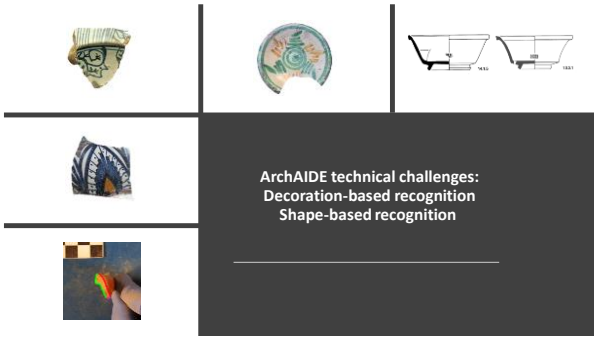

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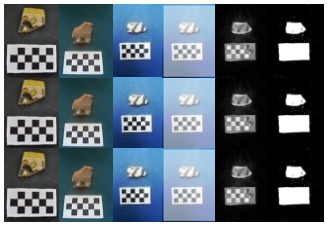

Decoration-based identification

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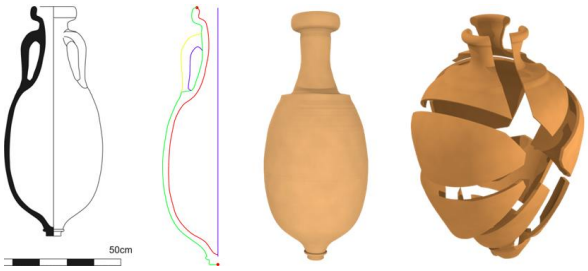

Shape based recognition

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What are the ArchAIDE outcomes?

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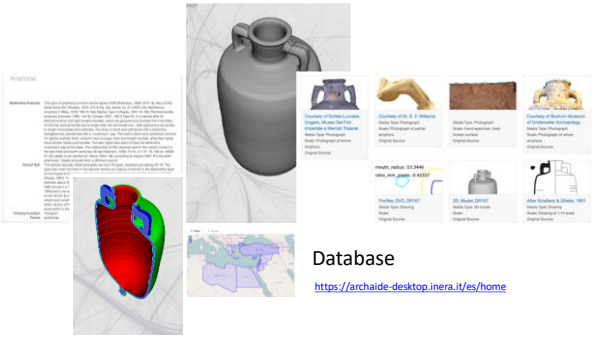

Database

https://archaide-desktop.inera.it/es/home

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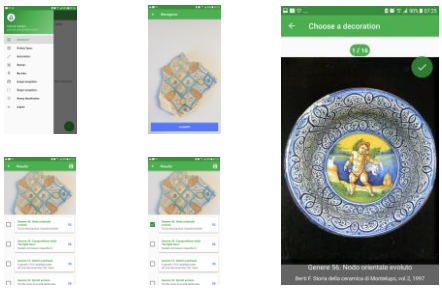

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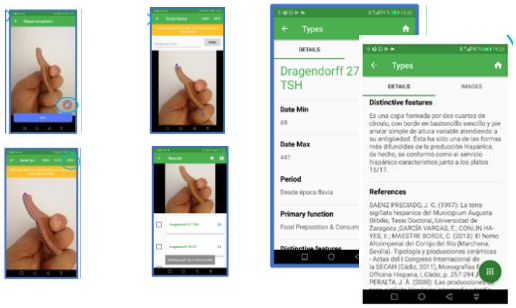

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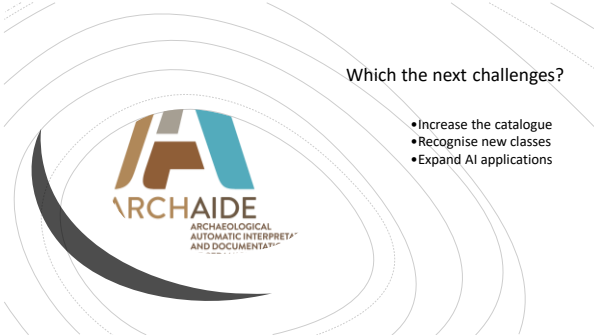

Which the next challenges?

- Increase the catalogue
- Recognise new classes
- Expand AI applications

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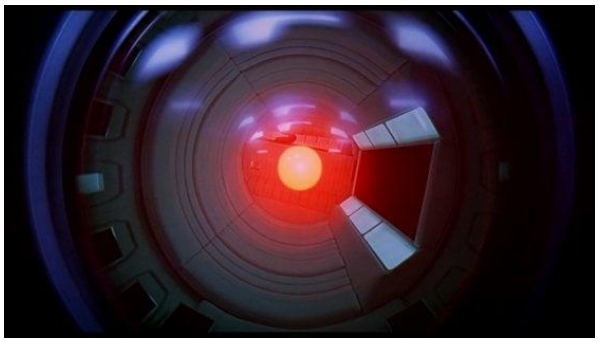

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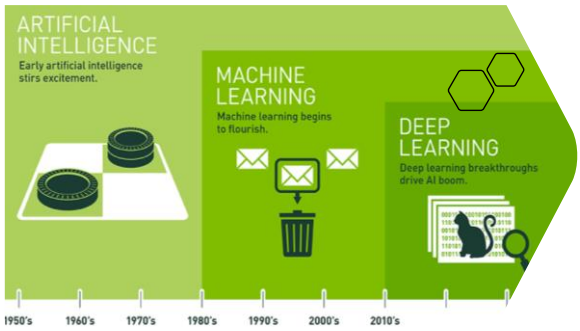

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Machine Learning

- Universal
- Robust
- Data-driven
- Random Forest

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Artificial Neural Networks (ANNs)

- Multilayer Perceptron Network (MLP)
- Probabilistic Neural Network (PNN)
- Convolutional Neural Network (CNN)
- Self-Organizing Feature Map (SOM)

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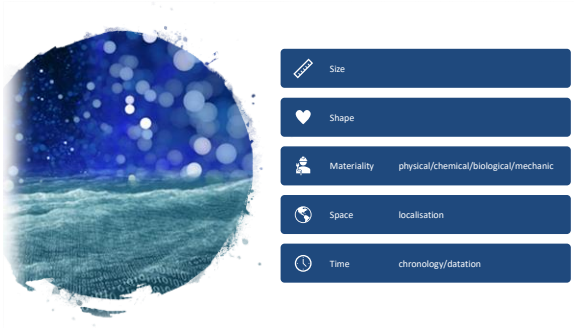

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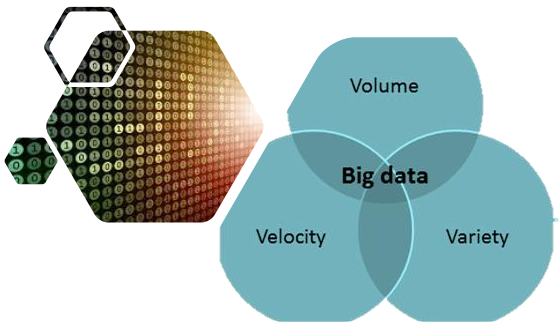

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Big Data paradigm

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Datafication

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Can archaeology theoretically fit a Big Data approach?

Many scholars suggest that archaeology is perfect for Big Data because archaeological data are messy and difficult to structure by definition.

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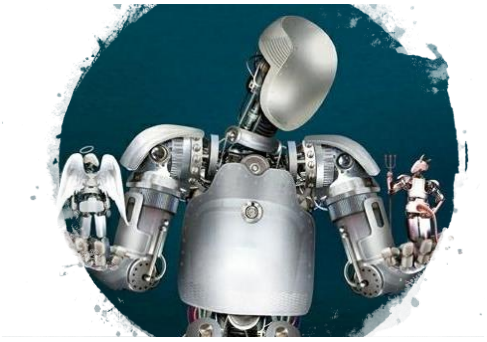

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Conclusion

One of the most complex aspects of applying AI is data availability.

AI algorithms need data, possibly Big Data, hopefully, Big Open Quality Data.

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