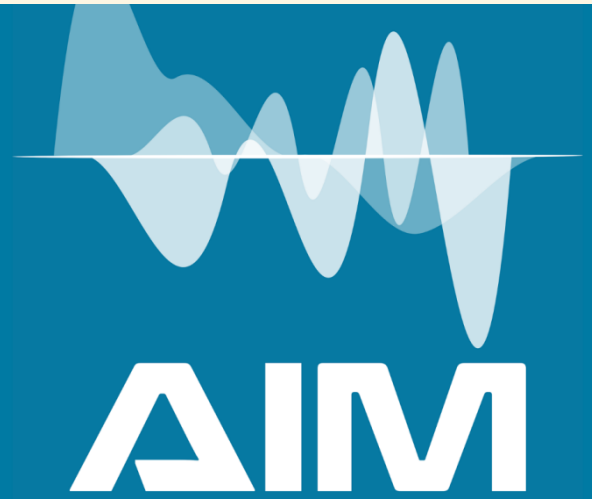
Artificial
Intelligence in
Medicine



PROJECT: NEXT AIM

KICK-OFF MEETING

18/02/2022

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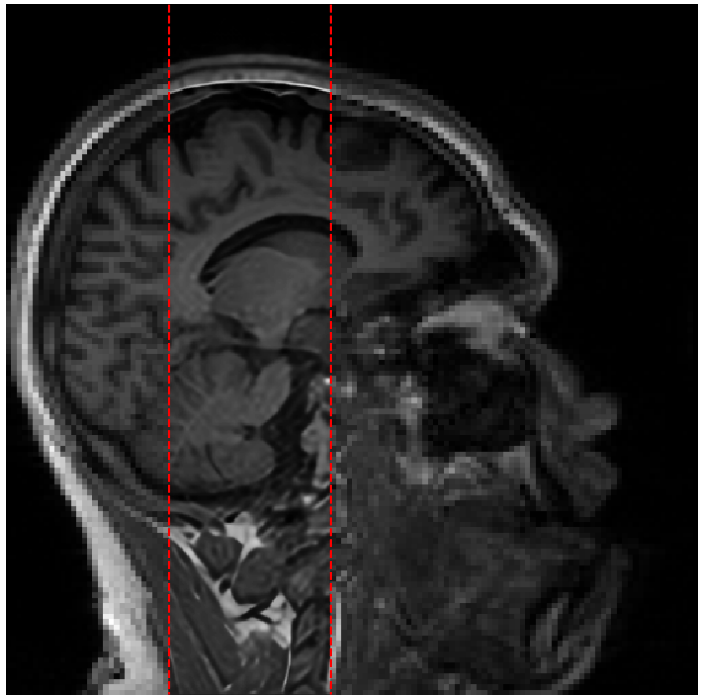
SUPER RESOLUTION IN MEDICAL IMAGES



Purposes:

- Improve Medical Image Resolution
- Improve the clinicians' image readability
- Improve the image acquisition time
- Improve object detection algorithms' performances
- Improve features extraction efficiency
- Better appreciate microcalcifications and small areas

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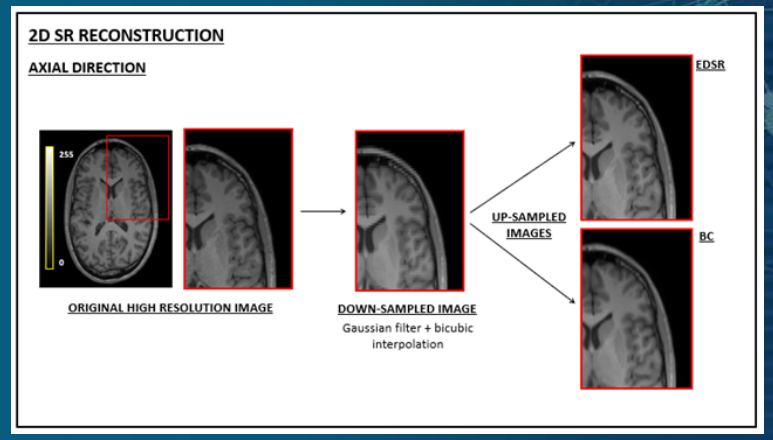
SUPER RESOLUTION IN MEDICAL IMAGES



What is Super Resolution?

- Increase spatial resolution via CNN
- Upsample the original image
- **It does not affect the image contrast**

Preliminary works:

- Implementation of several models
- Natural images training
- Transfer learning to medical images
- Comparison with classical upsampling
- Application to standard DB
- Application to NMR

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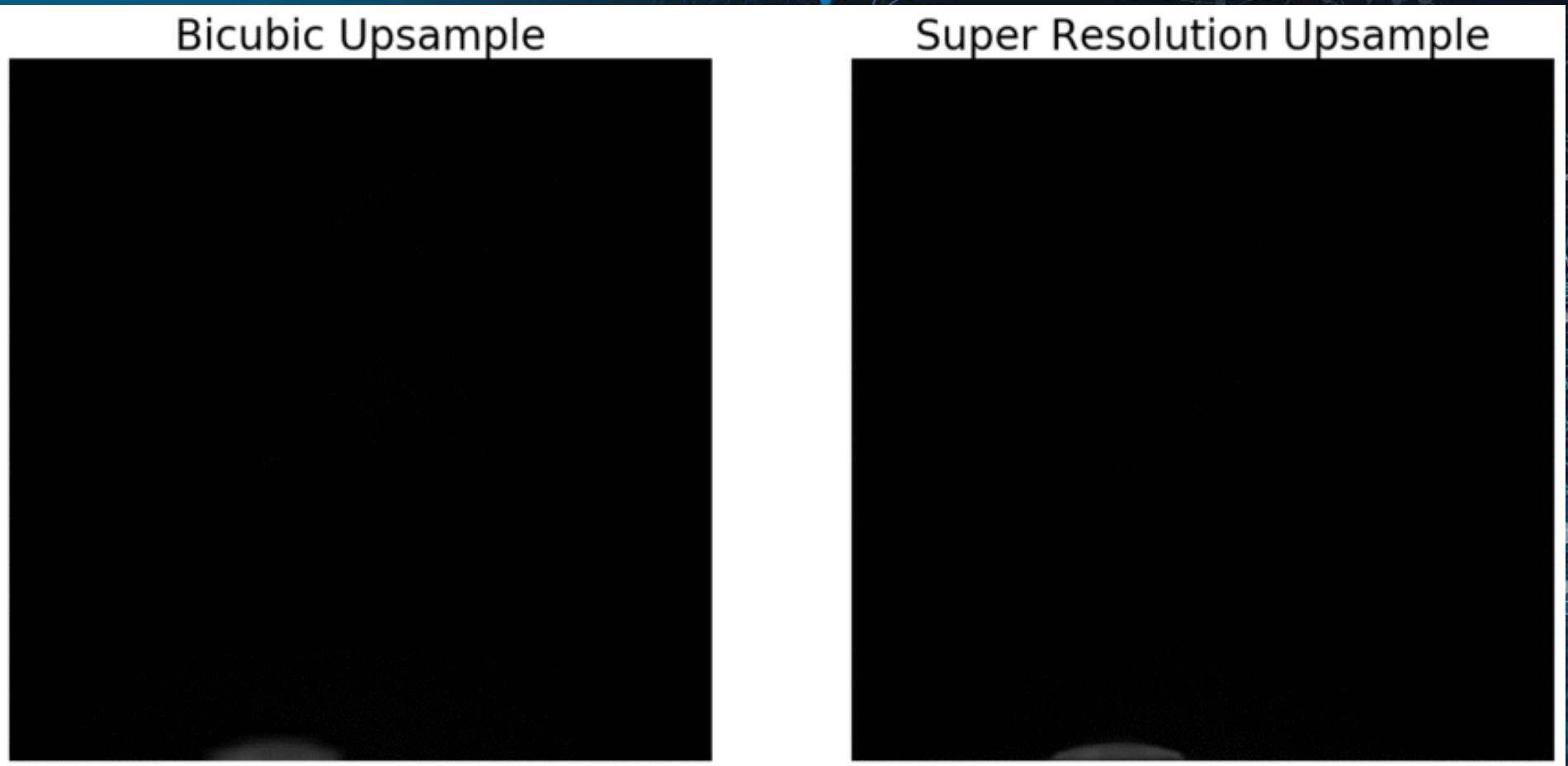
APPLICATION ON NMR



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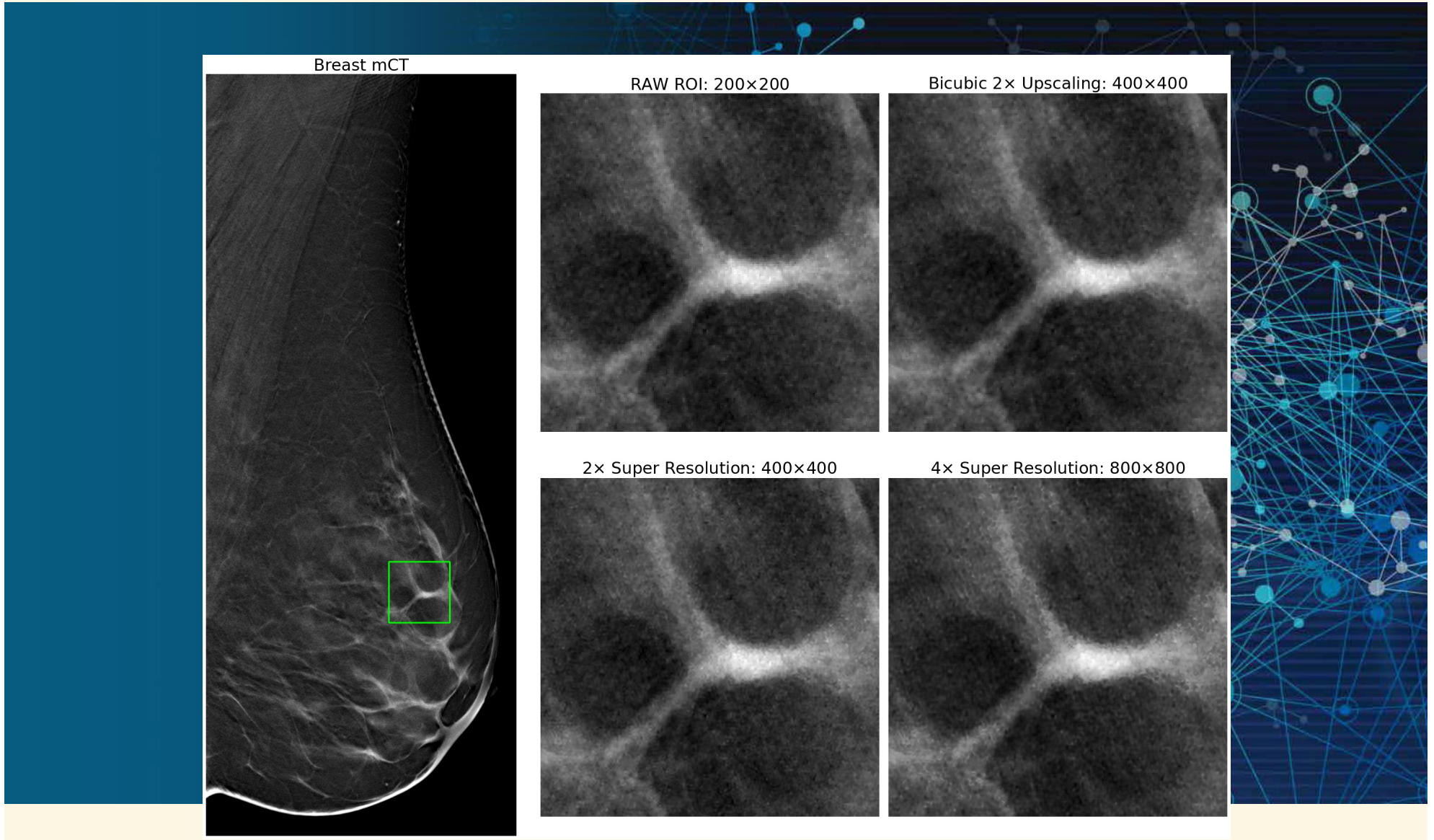
APPLICATION ON MICROCT



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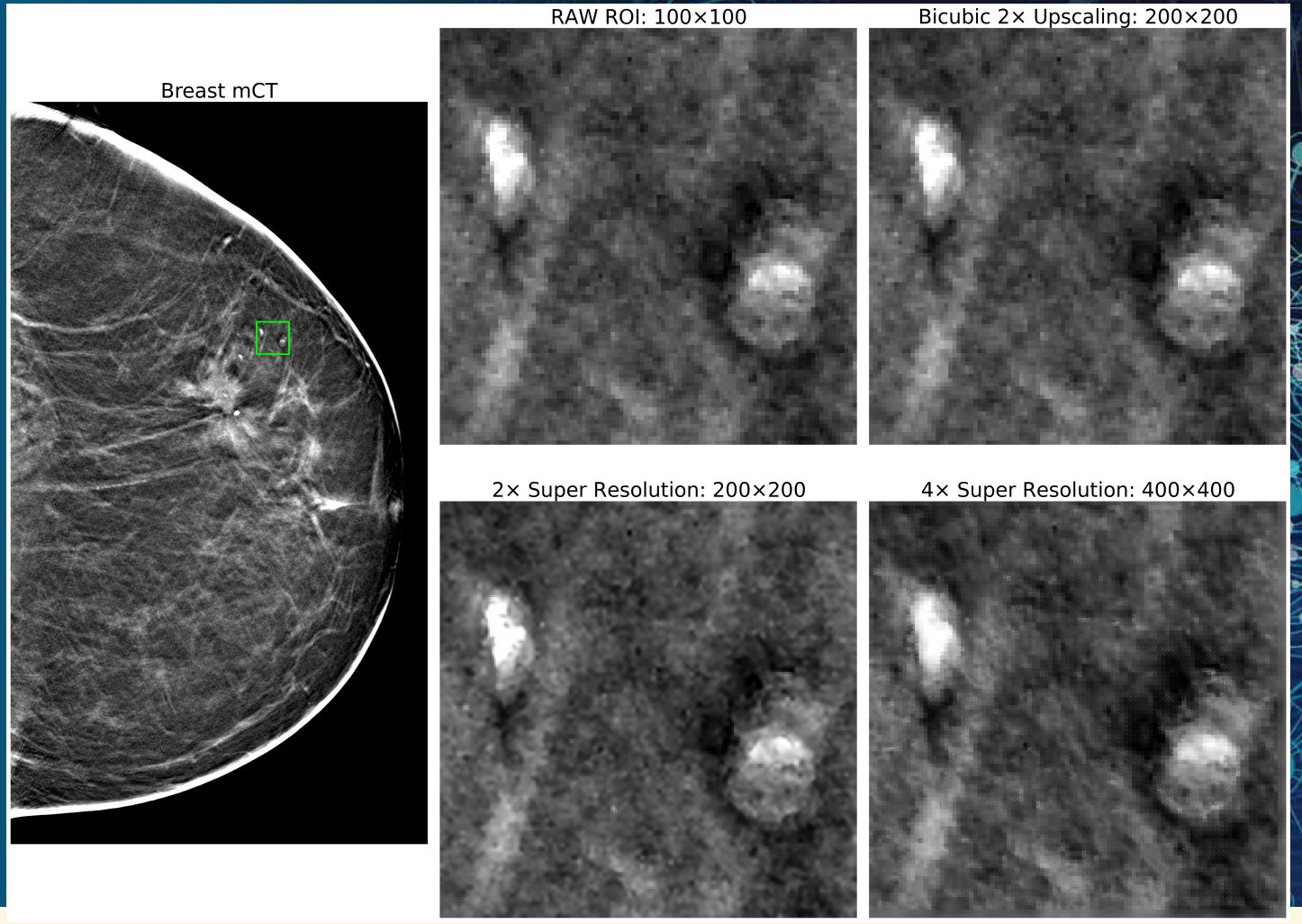
APPLICATION ON MICROCT



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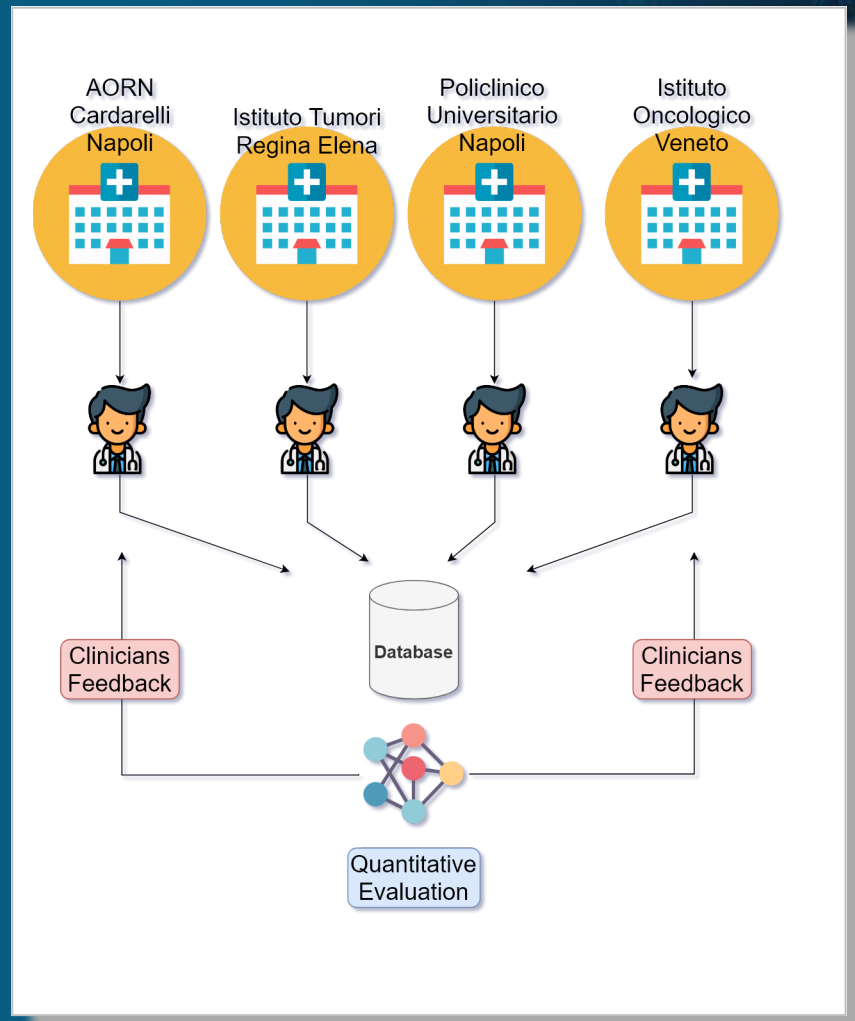
PROJECT WORKFLOW



- Multi-centre acquisition
- Data harmonization
- Multi-centre evaluation
- Clinicians "harmonization"
- Quantitative evaluation
  → numeric
- Qualitative evaluation
  → clinicians
- Clinicians bias minimization

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