

# STAND INRIA



Journée Emploi Mathématiques et  
Interactions



# Inria

## National Research Institute in numerical sciences and technologies

- ▶ 10 regional centers

Bordeaux, Grenoble, Lille, Lyon, Nancy, Paris, Rennes, Sophia (Nice), Saclay



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## **Inria center of Bordeaux University (since 2008)**

- ▶ 270 employees (180 scientists)
- ▶ 21 project-teams



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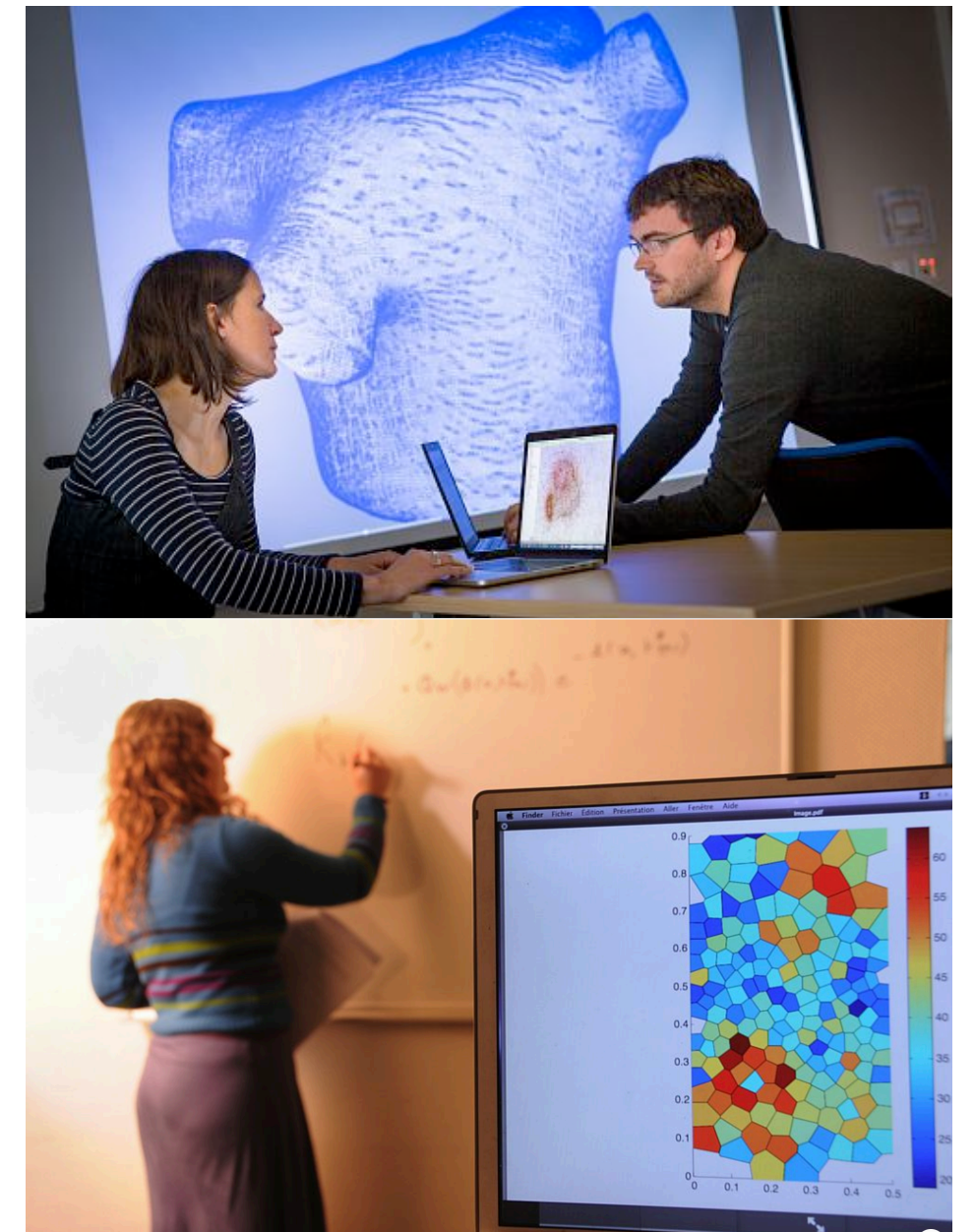
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### Main research axes

- ▶ High Performance Computing and Big Data
- ▶ Automatic Learning - linked to Neurosciences and Cognitive Sciences
- ▶ Digital Health - Personalized Medicine







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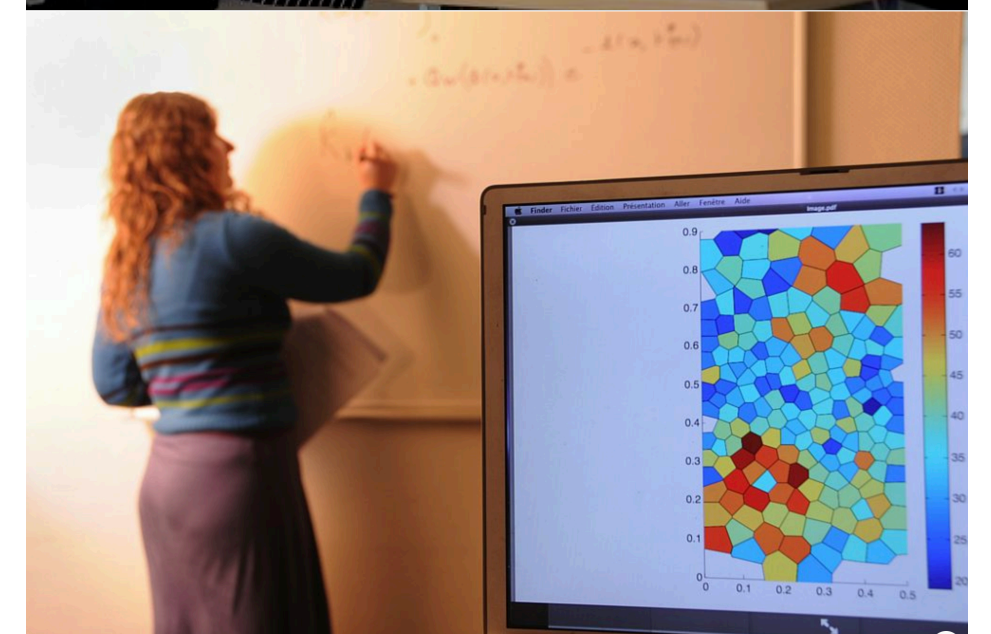
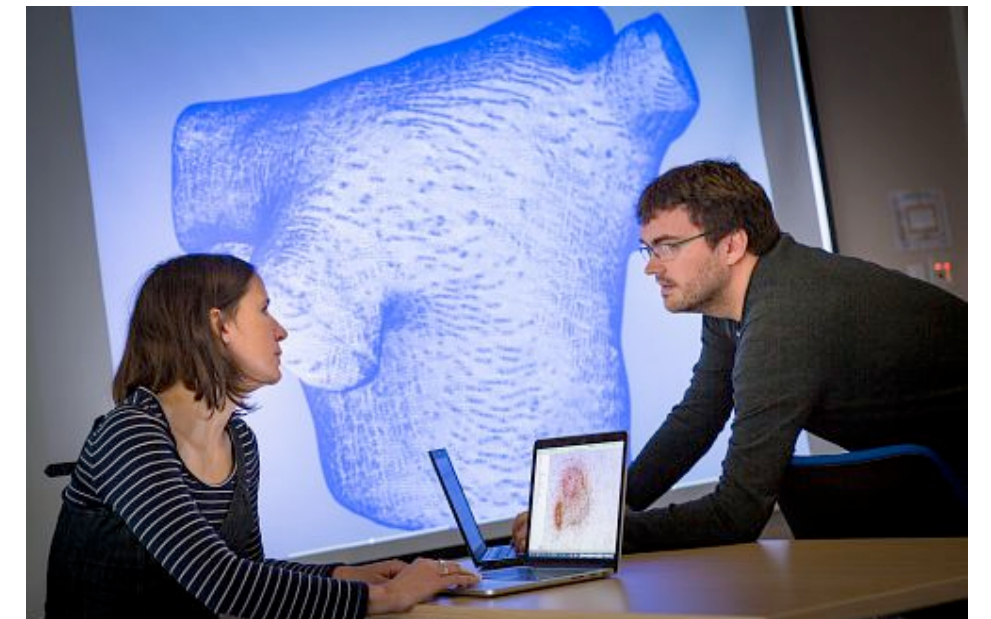
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### Transversal themes

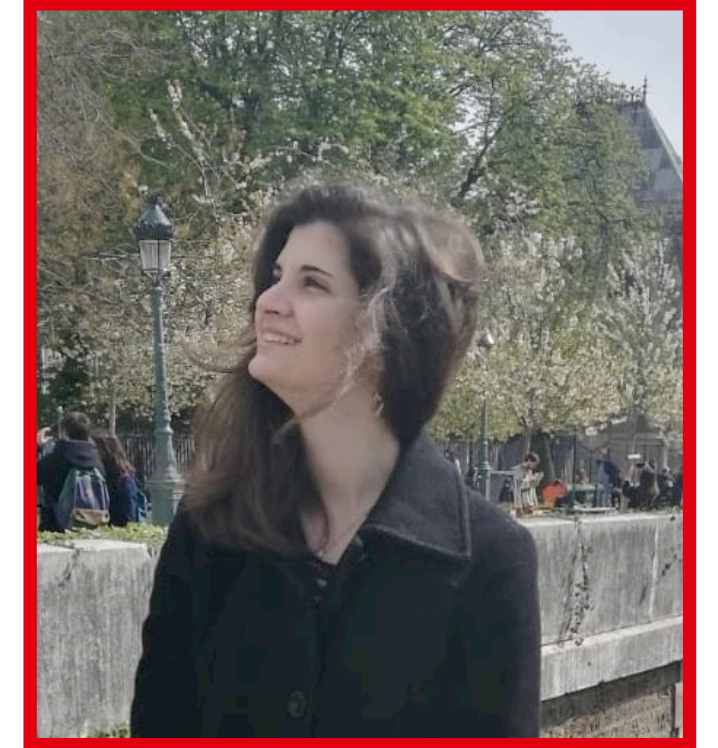
- ▶ Societal challenges: climate, education, health
- ▶ Specific applications: energy, aeronautics, aerospace, defense
- ▶ Methodological approaches: experimental approach, interdisciplinarity





# At the stand (1/2) : Alessia Del Grosso

- ▶ MEMPHIS team  
Modeling Enablers for Multi-PHysics and InteractionS

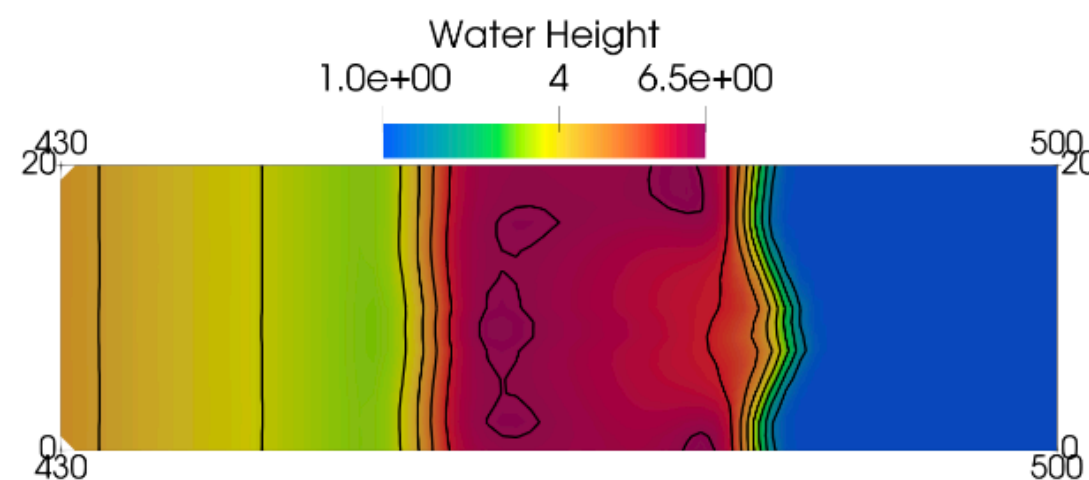
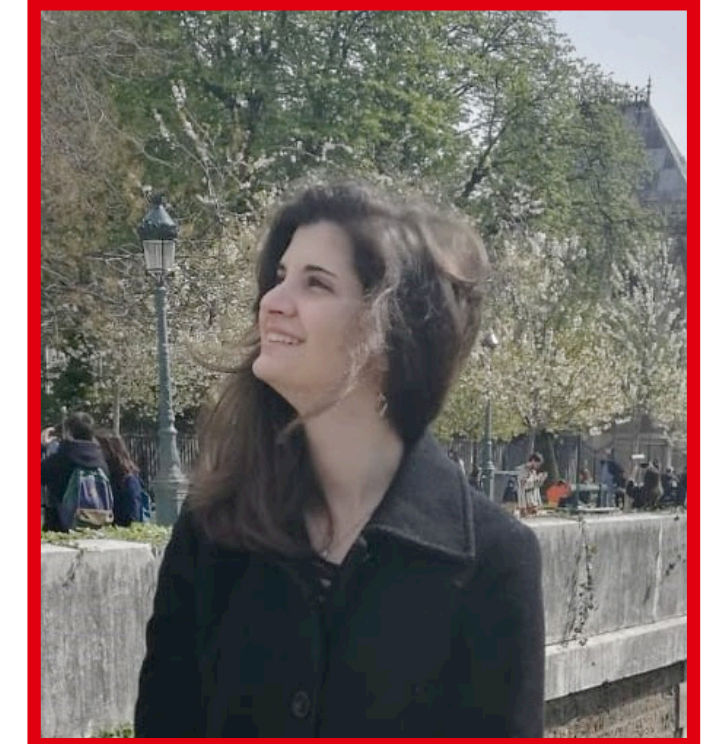


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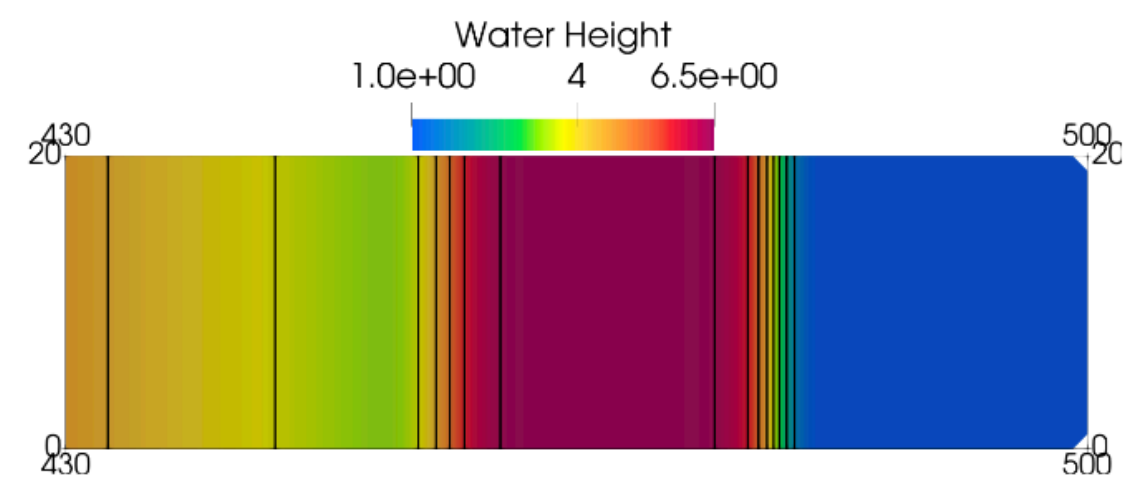
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## Research interests

- ▶ Numerical simulations of Partial Differential Equations (PDE)
- ▶ Finite volume schemes for hyperbolic PDE
- ▶ Model Order Reduction



(a) Two-point scheme



(b) Multi-point scheme

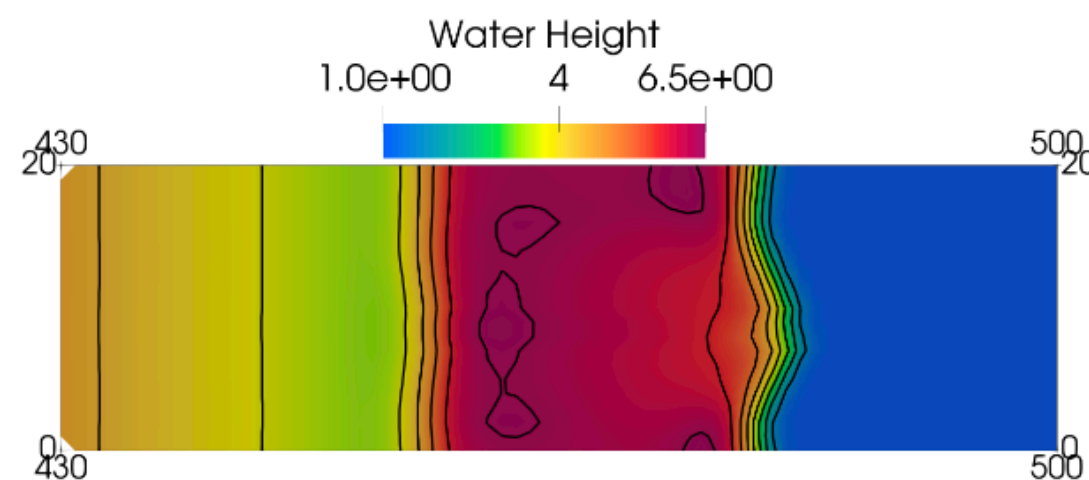
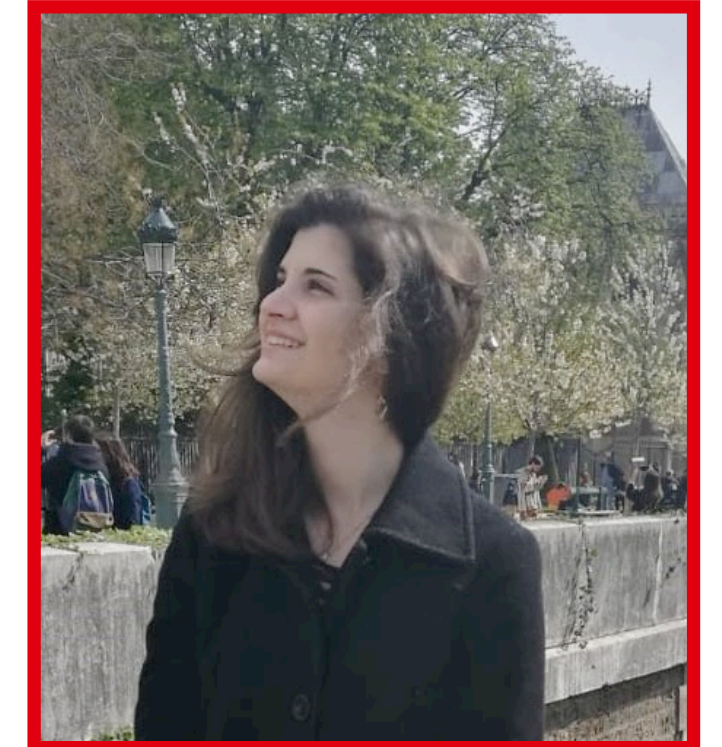


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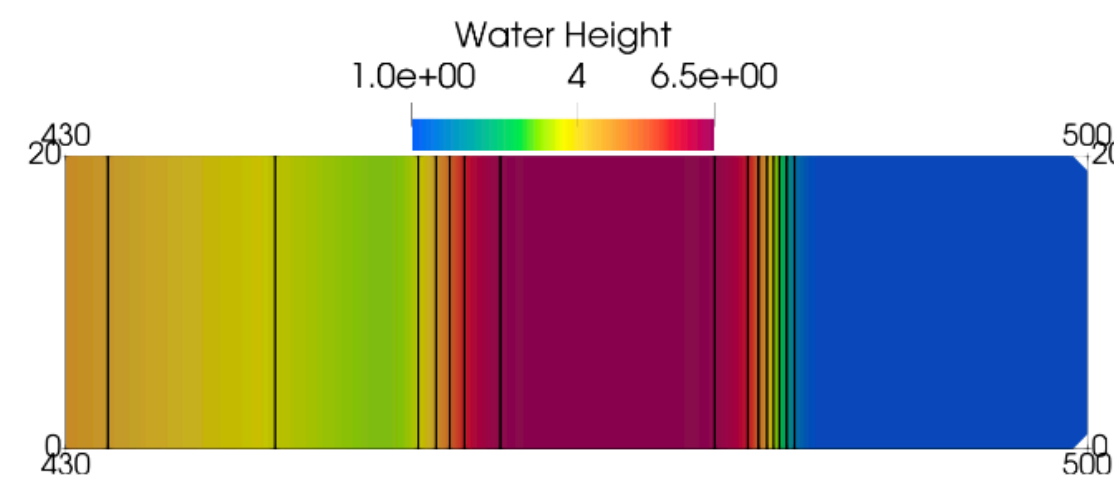
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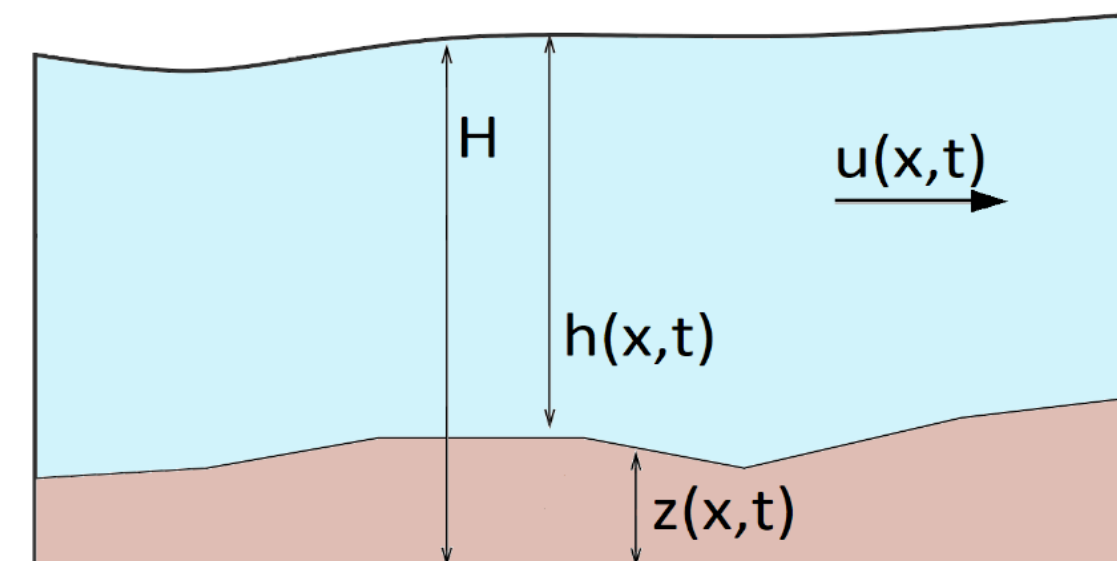
(a) Two-point scheme



(b) Multi-point scheme

## Applications: fluid dynamics

- ▶ Geophysical flows
- ▶ Aerodynamics
- ▶ Blood flows



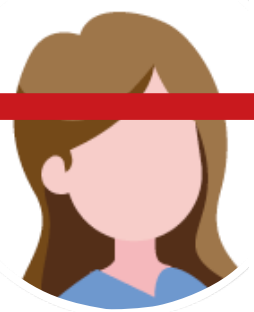
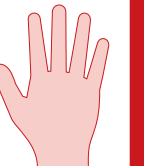
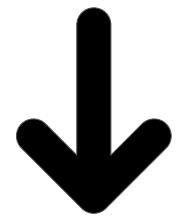


# At the stand (2/2) : Christèle Etchegaray

► **M** **NC** team

**M**odeling in **ONC**ology

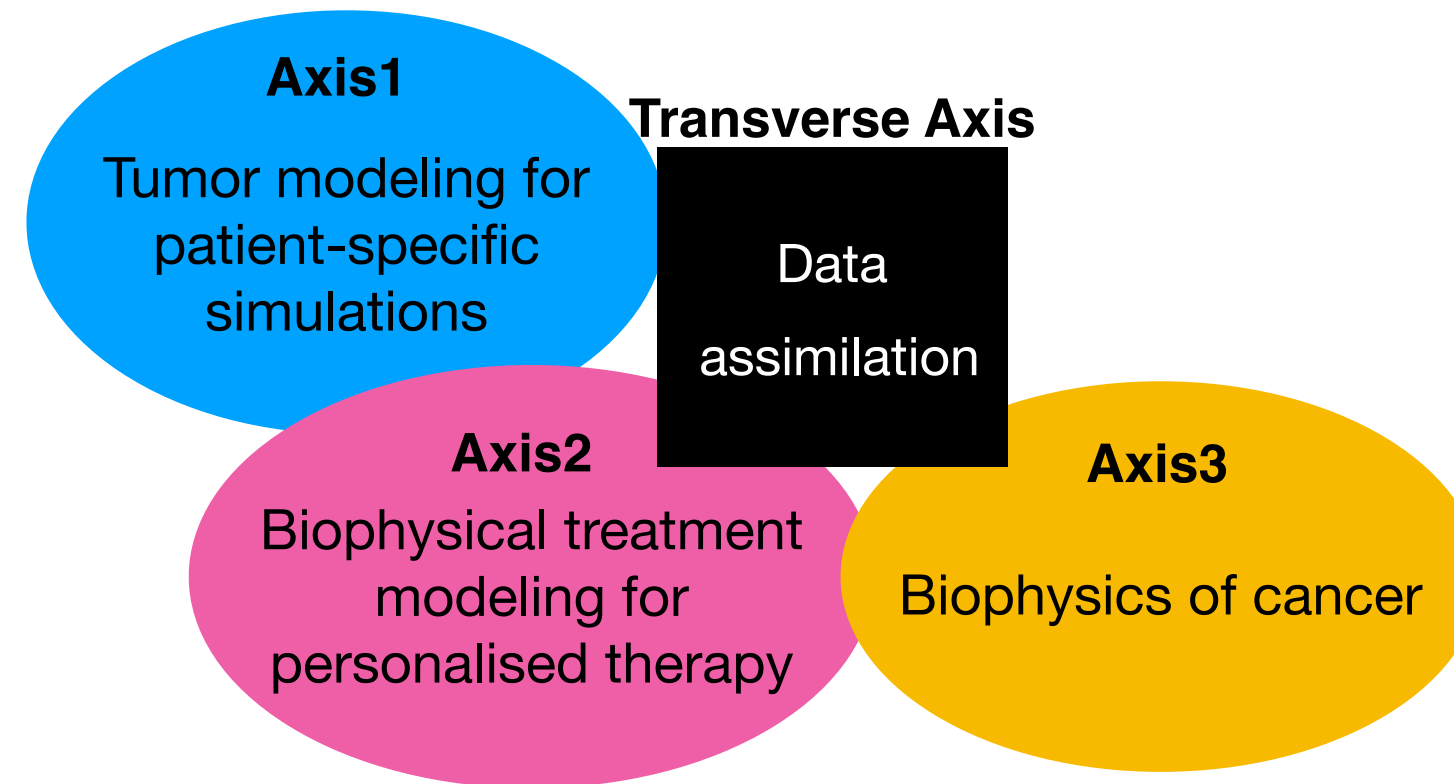
It's me  
Talking



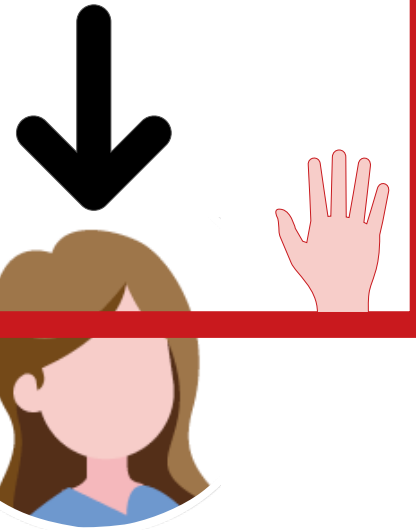
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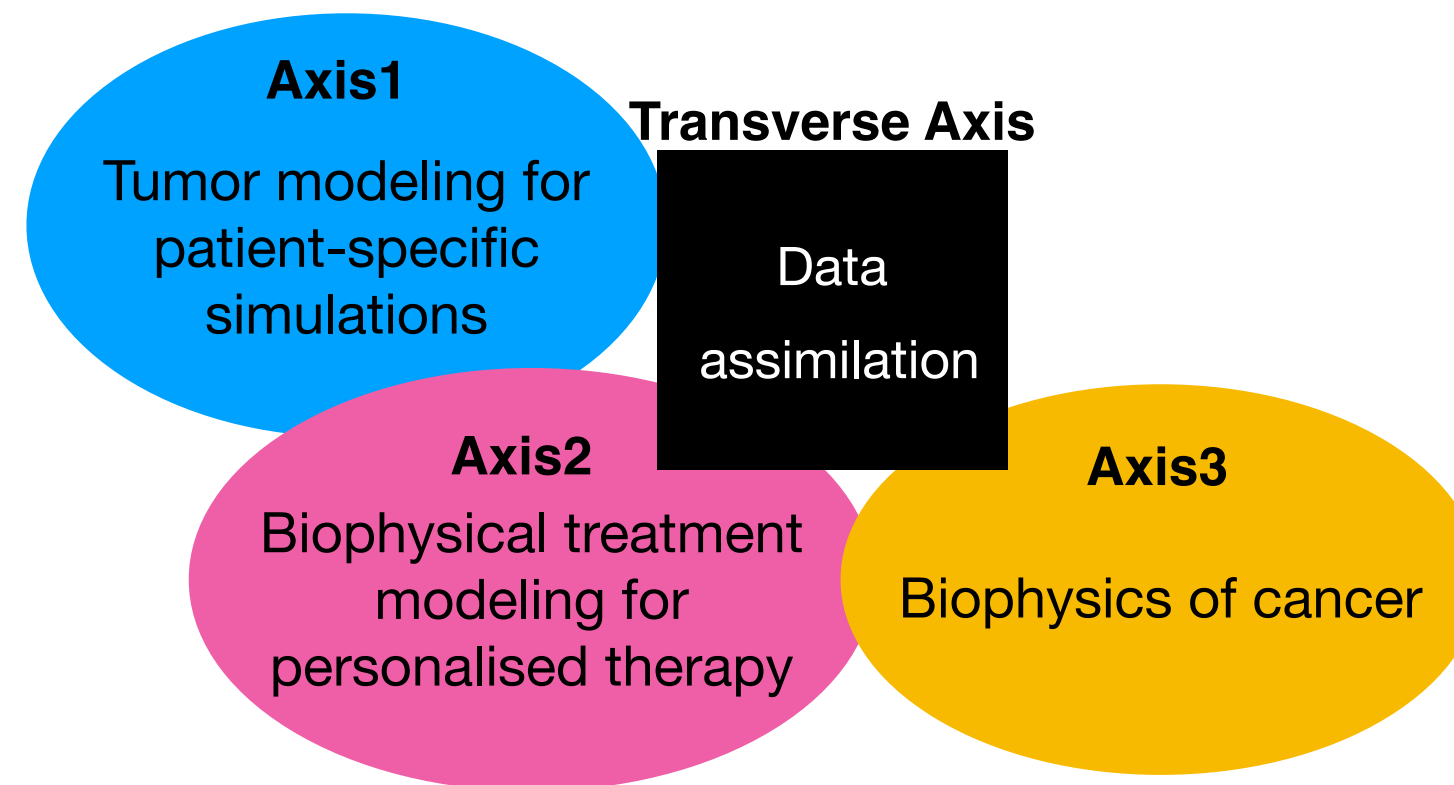


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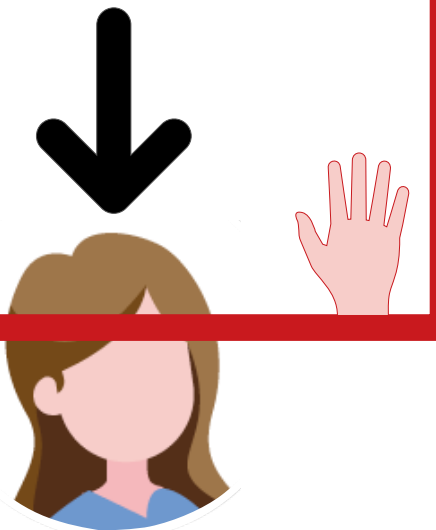


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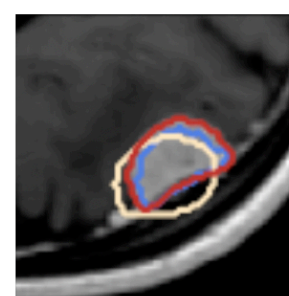
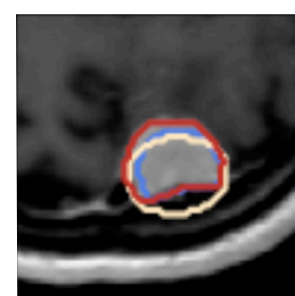
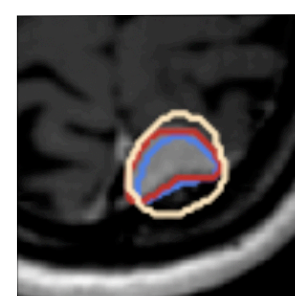


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## Internship project

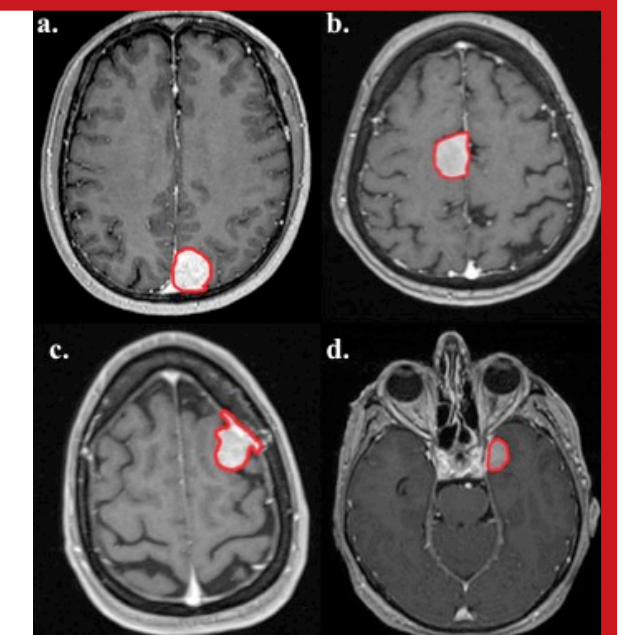
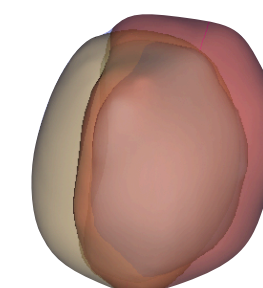
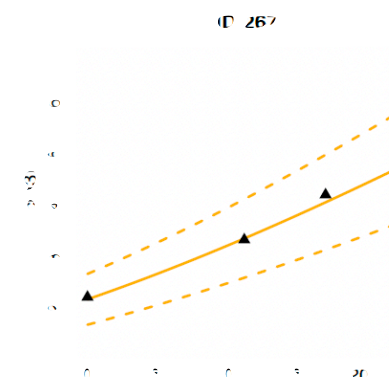
- Mathematical Modeling of **meningioma growth** using Latent Equations
- Follow both volumes and imaging texture
- Combine Differential equations and Neural Networks



Previous Volume

Predicted Volume

True Volume



***Merci.***

