BIGCEES - Big model and Big data in Computational Ecology and Environmental Sciences

Iosu **P**aradinas

MAIN TEAM

B. Liquet, D. Sous and N. Bru

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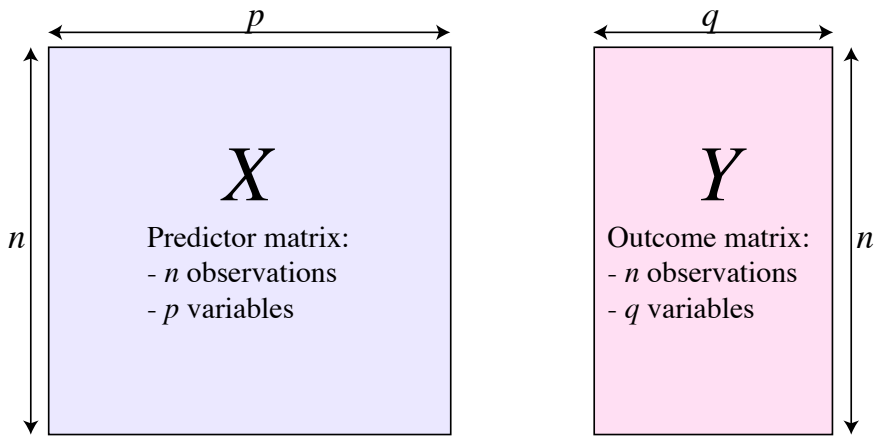
Scientific Context

Big Data Challenge in Ecology and Environmental Sciences:

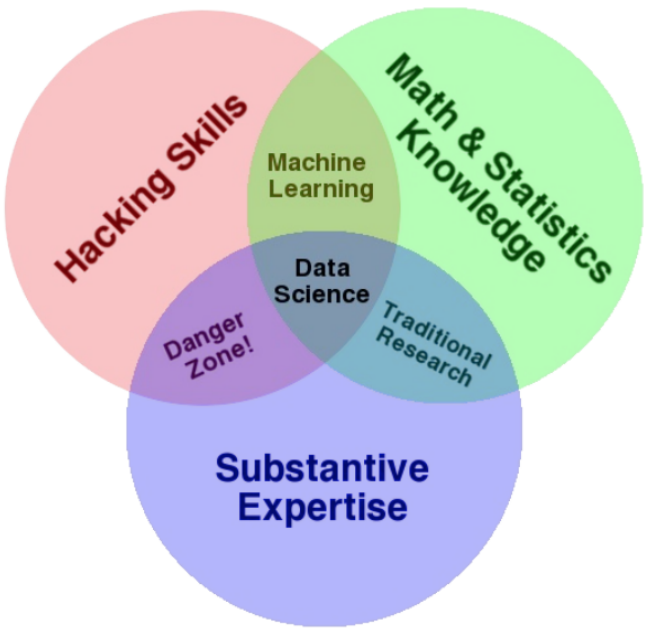


- High dimensional having many more variables than observations
- Non-linear effects
- Heterogeneous data types
- Changing relationships between variables

Scientific Challenge

Big data in Computational Ecology and Environmental Sciences:

- Multiple Data source
- Under exploited
- Integrate Analysis
- Potential of Monumental Discoveries



http://drewconway.com/zia/2013/3/26/the-data-science-venn-diagram

Main Team


Benoit Liquet


Damien Sous

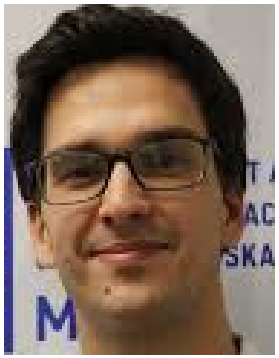

Noelle Bru

- Benoit Liquet, Prof in Statistics: High Dimensional Data, Dimension Reduction, Big-Data, Machine Learning
- Damien Sous, MCF in Mechanics: Nearshore and estuarine dynamics, waves, turbulence
- Noelle Bru, MCF in Statistics: Spatial temporal analysis , Spatially balanced sampling designs, Functional data analysis

Partner Team


Abadie Stéphane


Morichon Denis


Matthias Delpey

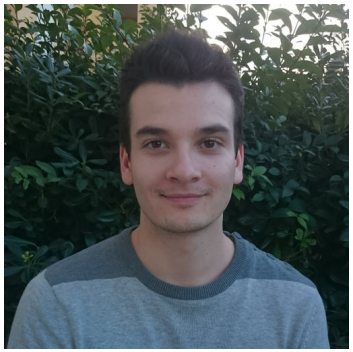

Nathalie Caill-Milly


Thirel Guillaume


Delaigue Olivier


Kerrie Mengersen

New Recruits



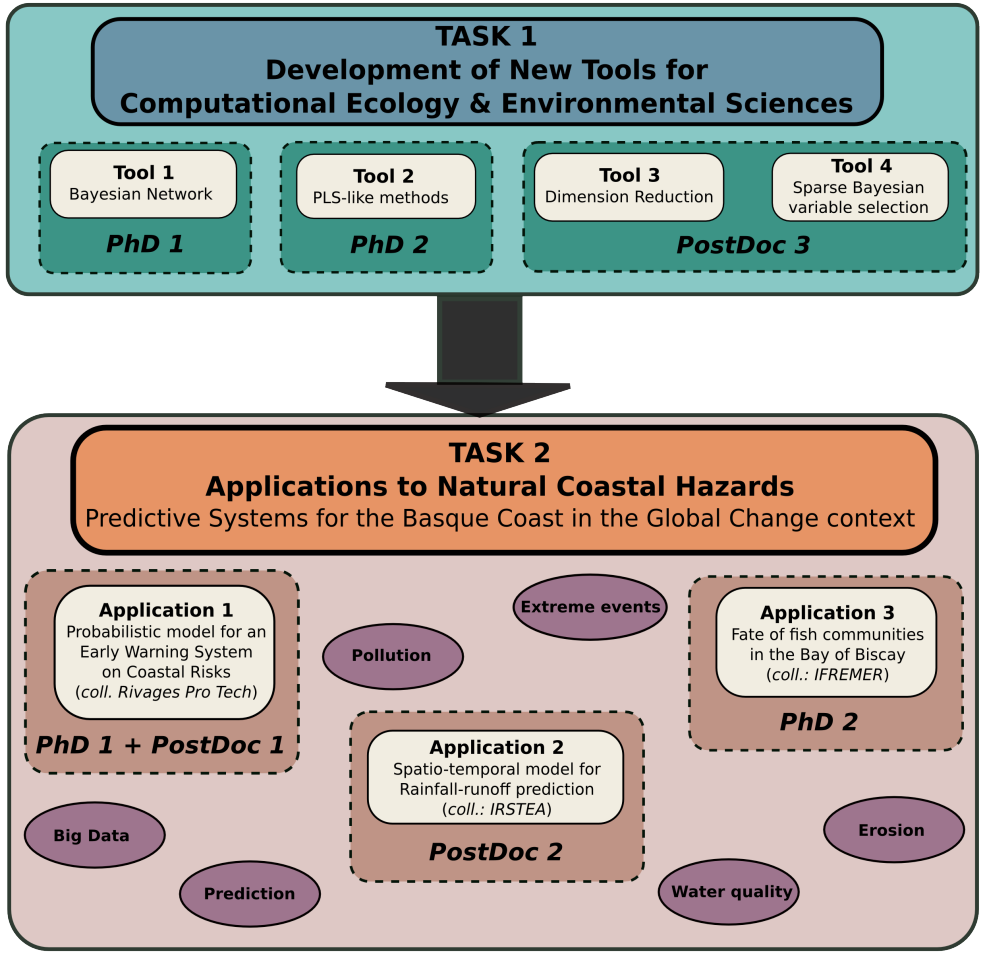
Aurelien Callens

Sebastian Coube

Iosu Paradinas

- Aurelien Callens, PhD 1: Bayesian neural networks for environmental sciences
- Sebastien Coube, PhD 2: Spatio-temporal Multivariate methods for ecology
- Iosu Paradinas, Postdoc: Spatio-temporal variable selection and predictive models for risk assessment

Scientific Program



Expected Results

- Scientific production:
  - Task1 –> Statistical methodology journals
  - Task2 –> Environmental and Ecological applied journals
- Dissemination:
  - Task1 –> Open, shared and participative toolkit and methods to be widely used by E&E communities
  - Task2 –> Decision support tools for policy makers: comprehensive understanding, predictive models, warning systems
- Strengthen existing collaborations: LMAP, IFREMER, SIAME, RPT
- Create new collaboration: IRSTEA


BIGCEES
is taking off