Two post-doc (2y each) and one engineer (1,5y) positions

Image analysis and tracking/Spatial statistics/Machine learning/Software development

The Digital Imaging and Modeling team at Institut Jean-Pierre Bourgin (Versailles, France), has two post-docs and one engineer positions available to work within the frame of national or international research projects involving collaborations with different groups of biologists. These positions are fully funded by the French National Agency for Research (ANR) through three distinct projects.

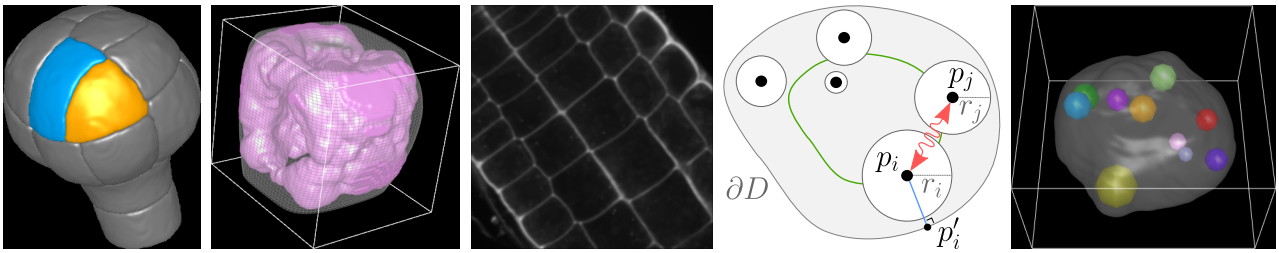
We are looking for strongly motivated young scientists or engineers aiming at developing their skills in time-lapse 3D biological image analysis, spatial statistics, and/or machine learning.

To apply, send CV, motivation letter and references to philippe.andrey@inrae.fr. Contracts are expected to start as soon as possible, ideally no later than early 2023.

Engineer (1,5 year) : Image analysis and spatial modeling of nuclear mechanical responses. Based on the methodology developed in the lab [1,2], the recruited engineer will design and implement new image analysis pipelines to quantify and model plant nuclear responses to mechanical stresses. Depending on personal profile and motivations, the project may encompass developing new software solutions. This work will be conducted within the frame of the ANR Blanc MechaNuc 2021-2025 project (collaboration: ME Chabouté, CNRS Strasbourg).

Post-doc 1 (2 years) : Image analysis and atlasing of spatio-temporal dynamics during the cell cycle. Based on previous work in the team [3], the recruited post-doc will establish a computational framework based on image analysis and statistical learning to reconstruct and analyze a 3D+t atlas of subcellular dynamics in cycling plant cells and to model cell division [4,5]. This work is part of the ANR Blanc PlantScape 2021-2024 project in collaboration with David Bouchez (IJPB, Versailles) and Marie-Cécile Caillaud (RDP, Lyon).

Post-doc 2 (2 years) : Image analysis and modeling of chromosome movements during meiosis. The recruited post-doc will extend the methodology developed in the lab for the spatial modeling of object patterns [1,2] for the analysis of chromosome movements in 3D within meiotic plant nuclei. This work will be part of the ANR PRCI MeioMove 2021-2024 project in collaboration with Mathilde Grelon (IJPB, Versailles) and Arp Schnittger (U Hamburg, DE).



References

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4. Moukhtar J, Trubuil A, Belcram K, Legland D, Khadir Z, Urbain A, Palauqui J-C and Andrey P (2019). Cell geometry determines symmetric and asymmetric division plane selection in Arabidopsis early embryos. PLoS Computational Biology, 15, e1006771.
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