2. Computing forces from microscopy images in embryo development

During this internship, inverse methods for the computation of forces from a set of displacement field will be analyzed.

These techniques aim to minimize the error in the mechanical equilibrium, and allow inferring the mechanical forces from measured displacements fields. The method will be applied to the development of the central nervous system.

References

- M. K. Rausch, M. Genet, J. D. Humphrey. An augmented iterative method for identifying a stress-free reference configuration in image-based biomechanical modeling. J. Biomechanics, 58: 227–231, 2017
- JJ Muñoz. "Non-regularised Inverse Finite Element Analysis for 3D Traction Force Microscopy". International Journal of Numerical Analysis and Modeling. 13 (5): 763-781, 2016.