



Life Sciences Seminar

Estimating molecular motions from cryo-EM images with DynaMight

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Single-particle cryo-EM images emerge from many diverse observations of the same molecule, where flexible areas of it result in a local drop of resolution in a single 3D reconstruction. We introduce DynaMight, a software integrated in RELION 5.0, that employs machine learning techniques to estimate smooth deformation fields of a Gaussian model for every projection image. DynaMight can be used to visualize the flexibility of a sample, select a subset of particles, and incorporate all images into an improved reconstruction. Using a filtered backprojection algorithm along curved lines computed from the estimated deformations, we are able to better resolve the flexible regions. We demonstrate that the estimated deformation alongside with the modified reconstruction algorithm yields improved 3D reconstructions on experimental data.

Monday, February 26, 2024 02:00pm - 03:00pm

Mondi 2



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