Genuage for multidimensional Point-cloud data visualization and analysis

Single-molecule localization microscopy (SMLM) is becoming the method of choice in several biological studies. SMLM explores the cellular structures and composition at the nanometric scale. Single-molecule tracking provides also valuable information about the molecular interaction.

New optical methods are now being developed and the complexity of the recorded data is increasing. This raises many concerns regarding data representation, interaction and analysis.

Genuage is an open-source software dedicated for multidimensional point-cloud data visualization and analysis.

Genuage features two visualization modes: (i) a desktop mode for a simple visualization of the data sets on a 2D screen and (ii) a virtual reality mode for an immersive experience inside the point cloud.
The source codes can be found here:

https://github.com/Genuage/Genuage

the different releases:

https://github.com/Genuage/Genuage/releases

Check out our YouTube channel:
https://www.youtube.com/channel/UC2Z1xaGfhUNkEqdHXijwkAg/videos

Genuage is continuously being updated with increasing functionalities.

**Current functionalities:**

- Desktop and Virtual reality modes
- Can represent: 2D and 3D super-resolution data sets, single-particle trajectories, 3D molecular orientations, multicolor
- Easy visual parameter reconfiguration: Column reassignment, scaling, point size, color map...
- Data thresholding
- 3D selection tools
- Clipping plane at arbitrary angle
- Trajectory analysis
- Density calculation
- Interfaceable with MATLAB and Python
- Compatible with user defined dlls

**People actively involved in this project:**

Thomas Blanc (Institut Curie), Mohamed El-Beheiry (Institut Curie and Institut Pasteur), Jean-Baptiste Masson (Institut Pasteur) and Bassam Hajj (Institut Curie)

**In the news:**

https://institut-curie.org/actualite/innovation/genuage-4-dimensional-visualization-and-analysis-super-resolution-microscopy