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## Data Management and Data Science in Time-Resolved Fluorescence Microscopy of Individual Bacterial Cells

Modern advancements in the field of fluorescence microscopy generate large amounts of data in the form of image files. However, it becomes more problematic when it comes to modify, evaluate and analyze image files of different types. And if this was not enough, corresponding raw data needs to be generated not only in two dimensions, but sometimes in three dimensions. Additionally, acquisition in multiple channels along with time-resolved experiments just adds to the complexity of these data sets.

The project presented here deals exactly with this problem. It entails acquiring and analyzing time-resolved experiments of fluorescently labeled bacteria treated with antibiotics. The generated data is deconvoluted, images reduced from 3 dimensions to two, aligned, segmented and measured. All these steps generate new forms of data, which have to be stored and eventually evaluated.

Open questions that need addressing:

- At which points of the workflow does data have to be stored?
- Can we reduce the amount of data that needs to be stored?; and
- Further possibilities for data mining and if data evaluation can generate further information.

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