Bioimaging Database (Phase 1)

by

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submitted to
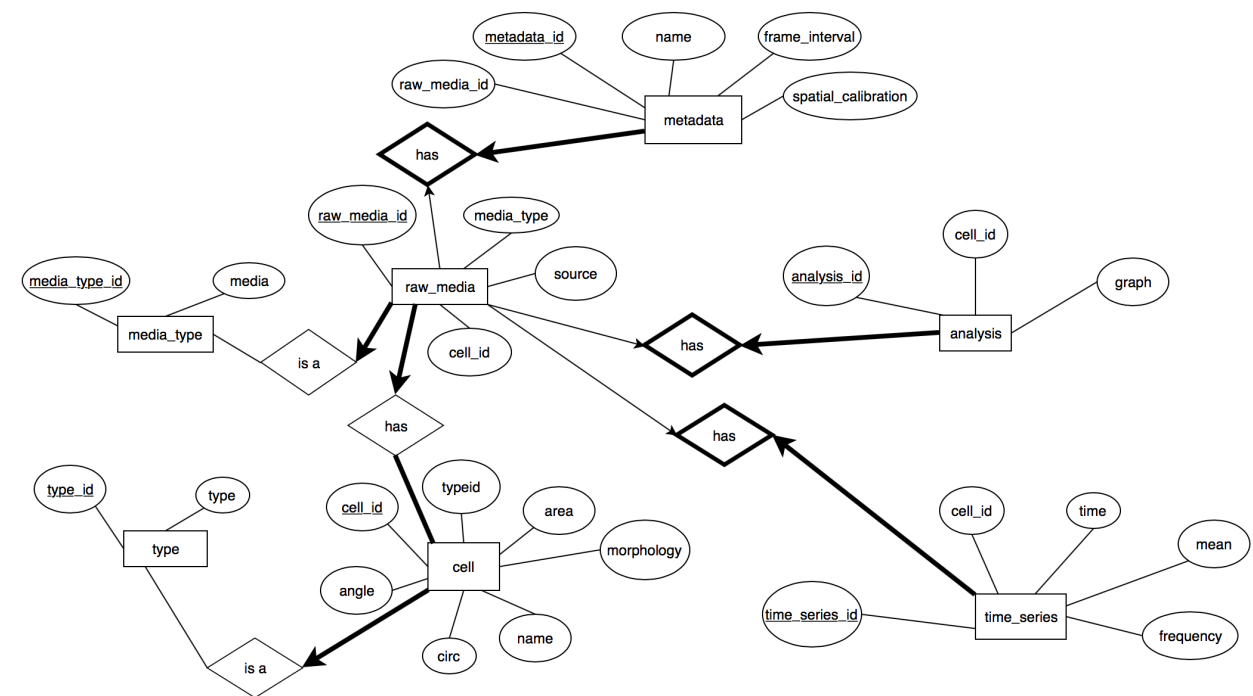
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High Level Description

We designed a database for a Microscopy imaging project. This will allow scientists to easily explore the images and manage the flow of data within their project. Our raw data consists of microscopy images and videos that are than processed into measurement data and time series analysis. To manage the imaging our design has 7 entities: media_type, raw_media, type, time_series, analysis, measurements, and metadata. Media type will allow us to distinguish between the type of raw media whether it is a video or image. Raw Media entity will store the videos along with the images. Type will allow us to distinguish between a Mutant cell and a Wild Type. The time series data is the analysis of the videos signal as a function of time. measurements entity will allow us to store static data of cell measurements for the images. Finally, metadata will give information on how the data was acquired.

ER Diagram

Logical Schema

media_type
- 🔑 id: INTEGER
- ▯ media: CHARACTER(5)

raw_media
- 🔑 id: INTEGER
- ▯ media_type: INTEGER
- ▯ source: BLOB
- ▯ cell_id: INTEGER

metadata
- 🔑 id: INTEGER
- ▯ name: VARCHAR(20)
- ▯ frame_interval: INTEGER
- ▯ spatial_calibration: FLOAT(20)
- ▯ raw_media_id: INTEGER

type
- 🔑 id: INTEGER
- ▯ type: CHARACTER(20)

cell
- 🔑 id: INTEGER
- 🔑 typeid: INTEGER
- ▯ area: FLOAT(10)
- ▯ angle: float(10)
- ▯ circ: float(10)
- ▯ morphology: CHARACTER(10)

time_series
- 🔑 id: INTEGER
- ▯ cell_id: INTEGER
- ▯ time: INTEGER
- ▯ mean: FLOAT(10)
- ▯ frequency: INTEGER

analysis
- 🔑 id: INTEGER
- ▯ cell_id: INTEGER
- ▯ graph: BLOB