Data Processing Overview

Raw motion
(.mvnx files)

mvnx_to_hdf.m

01-dataset-tutorial
Jupyter Notebook
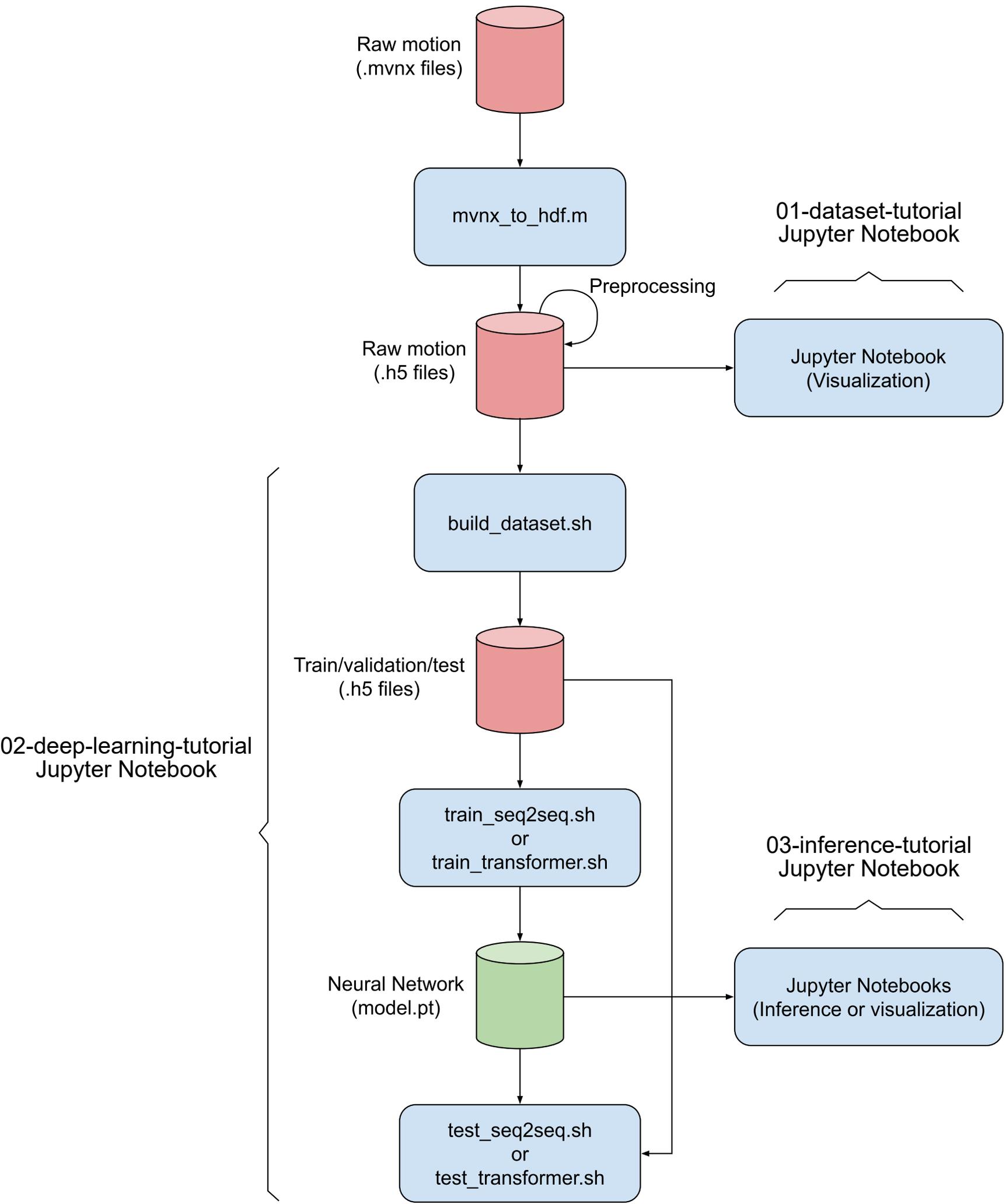
The .mvnx files are XML human-readable files that contain human motion data. They can be exported to .h5 files using the mvnx_to_hdf.m script (or process_mvnx_files.m for an entire folder).

Preprocessing

Raw motion
(.h5 files)

Jupyter Notebook
(Visualization)

The .h5 files can then be preprocessed to add additional data if needed (like normalized orientations). Functions in preprocessing.py and quaternion.py were used for this purpose.

build_dataset.sh

The build_dataset.sh shell script is used to build training.h5, validation.h5 and testing.h5 files for a given machine learning task.

Train/validation/test
(.h5 files)

02-deep-learning-tutorial
Jupyter Notebook

train_seq2seq.sh
or
train_transformer.sh

03-inference-tutorial
Jupyter Notebook

Neural networks can then be trained using train_seq2seq.sh and train_transformer.sh and the training.h5 and validation.h5 files.

Neural Network
(model.pt)

Jupyter Notebooks
(Inference or visualization)

test_seq2seq.sh
or
test_transformer.sh

The test shell scripts read in the model and testing.h5 data to generate graphs and test accuracy. Jupyter Notebooks can also be used to read in the models once they are trained to run inference and visualize motion.