

README for N-TIDIGITS Cochlea Spikes Dataset

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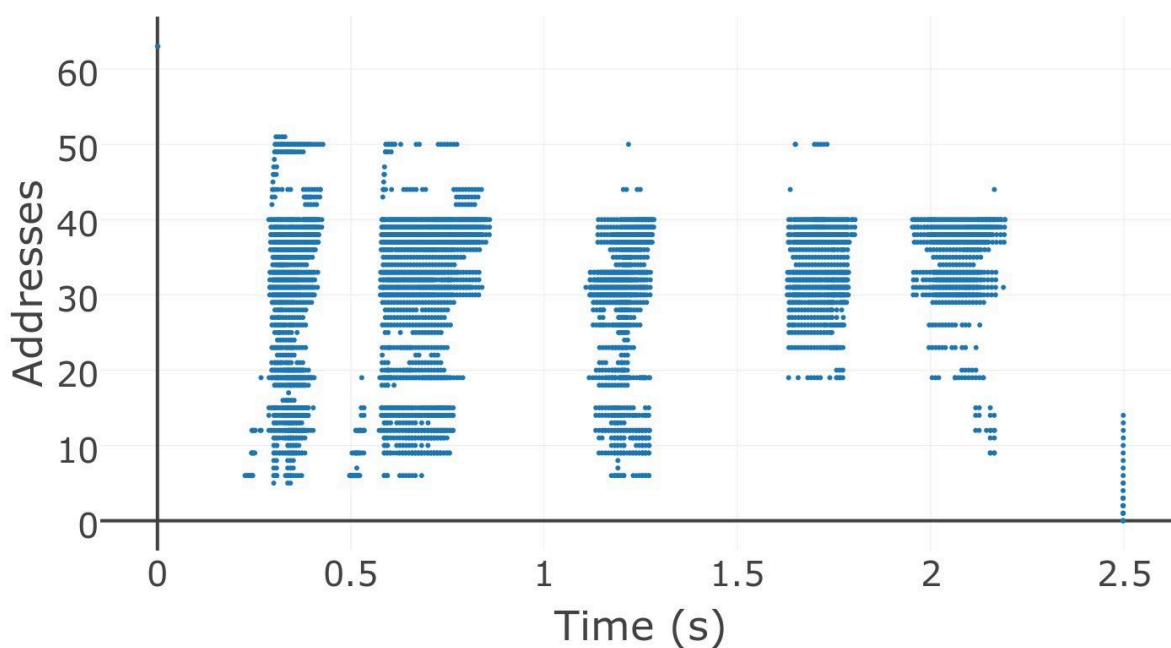
([link to source document](#))

This guide will help you started on the use of the N-TIDIGITS datasets. The dataset was created by playing the files from the TIDIGITS dataset to the Dynamic Audio Sensor, CochleaAMS1b. Details of the sensor can be found here

<http://aer-ear.ini.uzh.ch/dokuwiki-2010-11-07/doku.php>

The data is hosted at <https://www.dropbox.com/s/vfwwrhlyzkax4a2/n-tidigits.hdf5?dl=0>.

Spike rasters of 64 channels per ear for digit 2-2-8-4-3.



For questions related to the use of this dataset, please write shih@ini.uzh.ch and anumula@ini.uzh.ch

See more Inst. of Neuroinformatics [Sensors Group datasets here](#).

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Audio Event Stream

An audio event stream is a sequence of events encoding an auditory stimuli through the Dynamic Audio Sensor. Each event is characterized by a timestamp and an address. The timestamp gives the information as to when the event occurred and the address gives the information as to where the event occurred (in our case, it is the address of the frequency channel).

In our dataset, every event stream is stored in two separate datasets, one which holds the sequence of timestamps in the 'double' format and the other which holds the sequence of addresses in the 'uint8' format. Accessing both these datasets gives us the whole event stream. Note that this dataset provides event streams from a single neuron per channel and a single ear of the DAS and hence the address values of the channels range between 0 and 63. Also for each sample the timestamps are initialized to zero, and hence the first event has a timestamp of zero.

Organization of the HDF5 Dataset

The root group of the hdf5 file contains two datasets and four further groups.

The two datasets in the root group "/" are

1. train_labels
2. test_labels

The four groups in the root group "/" are

1. train_timestamps
2. train_addresses
3. test_timestamps
4. test_addresses

Each of these four groups holds datasets, which hold either the timestamp or the address sequences which can be accessed by the key values in the train_labels and test_labels datasets.

The train_labels and test_labels contain the key values for the training set and test set respectively. These keys are the dict keys which help access the timestamp and address data, and they also encode the label data.

An example key value in the test_labels dataset is "man-im-a-7557", which would correspond to the sample "A" of "7-5-5-7" spoken by a man named "IM" in the test dataset. This key value can be used to access the corresponding audio event stream from the groups test_timestamps and the test_addresses which hold the timestamps and the addresses for the event stream respectively. So in order to access the timestamps sequence for the sample "man-im-a-7557", you look for the dataset with the name "man-im-a-7557" in the test_timestamps group which would hold a single dimensional array of length equal to the number of events N in the sample. Similarly to access the corresponding addresses sequence for the sample, you look for the dataset with the same name in the test_addresses group which would hold a single dimensional array of the same length N .

Missing Files

There are few missing event files in the dataset.

In training split, there are two missing files:

- Woman-ji-a-zzz77
- woman-rn-b-z

In testing split, there are three missing files:

- Man-im-a-8o
- Woman-kj-a-5319z
- woman-pj-a-6o5

Further questions

Good luck and happy insights.

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