

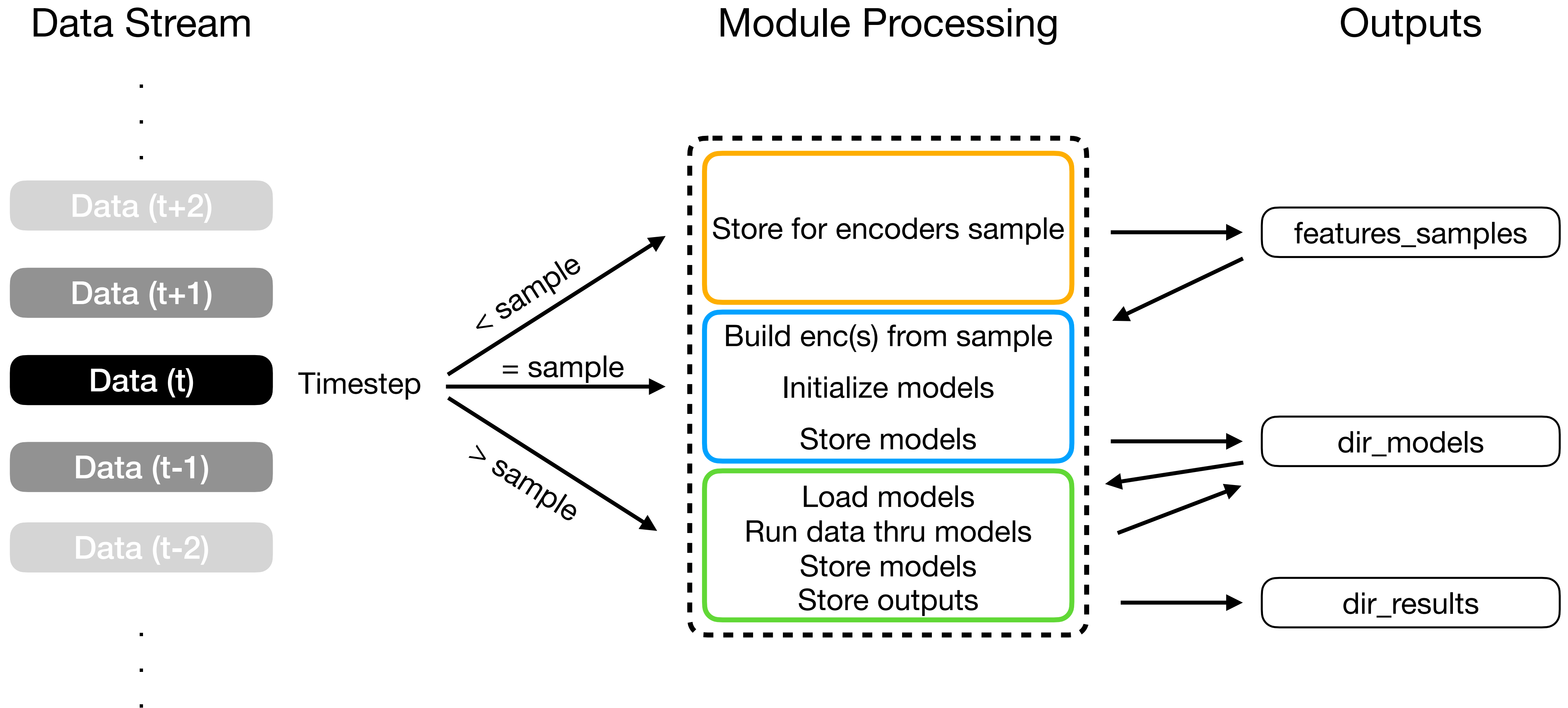
HTM.core Streamer

Python Module

Sam Heiserman — Jan, 2022

Module Overview

1) Sample 2) Initialize 3) Run



Function Call Tree

source.pipeline.htm stream.stream to htm()

load_config
load_json
validate_config

if mode == sample:
 extend_features_samples

elif mode == initialize:
 extend_features_samples
 build_enc_params
 get_rdse_resolution
 init_models
 HTMModel.init_model()
 HTMModel.init_encs()
 htm.core.RDSE_Parameters()
 htm.core.RDSE()
 htm.core.DateEncoder()
 HTMModel.init_sp()
 htm.core.SpatialPooler()
 HTMModel.init_tm()
 htm.core.TemporalMemory()
 HTMModel.init_anomalyhistory()
 htm.core.AnomalyLikelihood()
 HTMModel.init_predictor()
 htm.core.Predictor()
 save_models
 save_data_as_pickle

elif mode == run:
 load_models
 load_pickle_object_as_data
 run_models
 HTMModel.run()
 HTMModel.get_encoding()
 htm.core.encoder.encode()
 htm.core.SDR.concatenate()
 htm.core.sp.compute()
 HTMModel.get_predcount()
 htm.core.tm.activateDendrites()
 htm.core.tm.getPredictiveCells()
 htm.core.tm.compute()
 HTMModel.get_preds()
 htm.core.predictor.infer()
 htm.core.predictor.learn()
 save_outputs
 save_models

Config Structure

Set by user

```
dirs:  
  data: /where/to/stream/to  
  models: /where/to/save-load/models  
  results: /where/to/save/results
```

```
features:  
- Solar_Panel_Voltage_X  
- 3.3_Bus_Current  
- Receiver_Doppler  
- Total_Photo_Current
```

```
models_state:  
  learn: true  
  mode: sample_data  
  model_for_each_feature: true  
  timestep: 0
```

```
timesteps_stop:  
  learning: 100  
  running: 110  
  sampling: 50
```

```
models_encoders:  
  minmax_percentiles:  
    - 1  
    - 99  
  n: 700  
  n_buckets: 140  
  sparsity: 0.02  
  timestamp:  
    enable: false  
    feature: satellite_time  
    timeOfDay:  
      - 30  
      - 1  
  weekend: 21
```

```
models_predictor:  
  enable: false  
  resolution: 1  
  steps_ahead:  
    - 1  
    - 2
```

```
models_params:  
  anomaly:  
    period: 1000  
  predictor:  
    sdrc_alpha: 0.1  
  sp:  
    boostStrength: 3.0  
    columnCount: 1638  
    localAreaDensity: 0.04395604395604396  
    potentialPct: 0.85  
    synPermActiveInc: 0.04  
    synPermConnected: 0.13999999999999999  
    synPermInactiveDec: 0.006  
  tm:  
    activationThreshold: 17  
    cellsPerColumn: 13  
    initialPerm: 0.21  
    maxSegmentsPerCell: 128  
    maxSynapsesPerSegment: 64  
    minThreshold: 10  
    newSynapseCount: 32  
    permanenceDec: 0.1  
    permanenceInc: 0.1
```