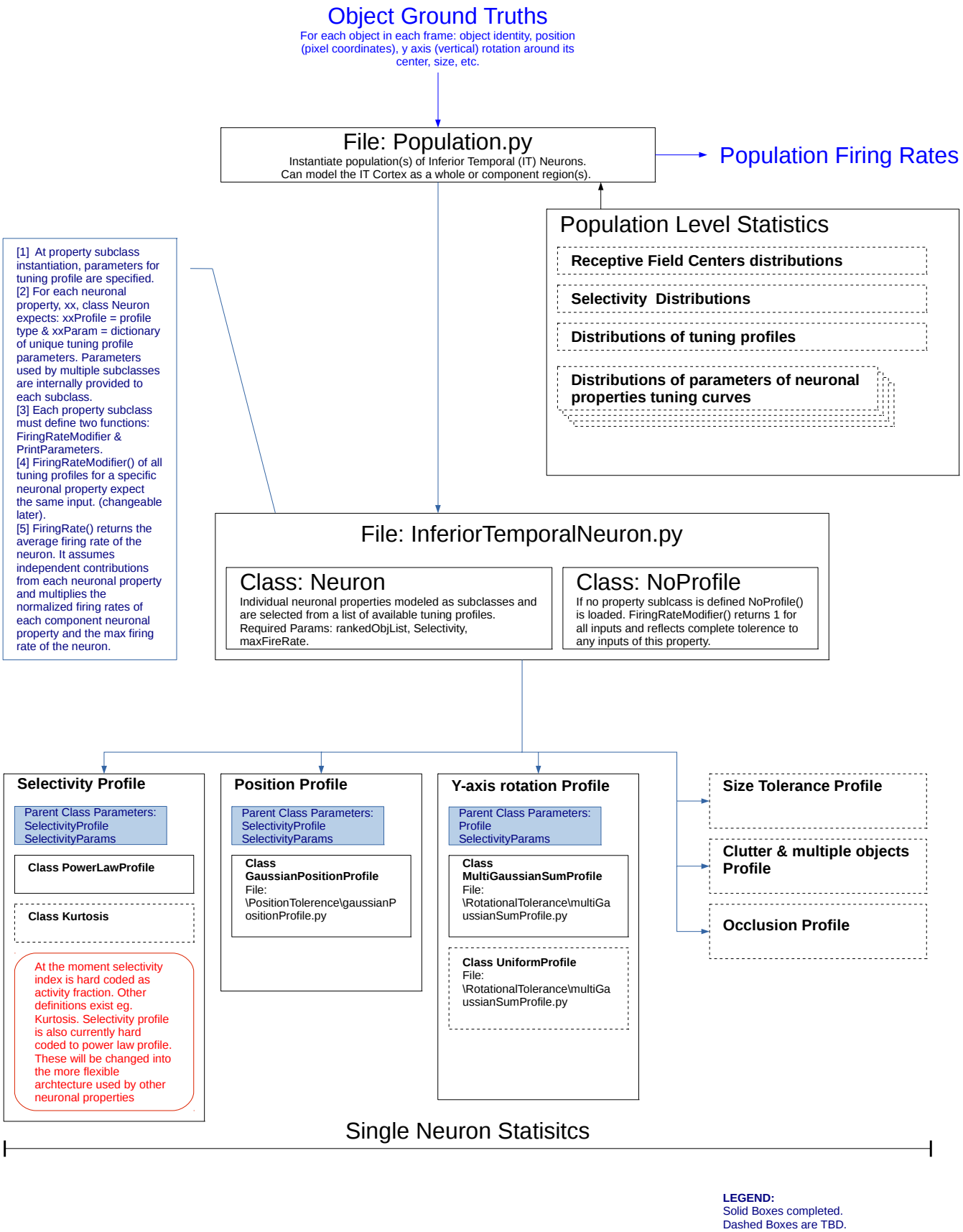
Object Ground Truths
For each object in each frame: object identity, position (pixel coordinates), y axis (vertical) rotation around its center, size, etc.
File: Population.py
Instantiate population(s) of Inferior Temporal (IT) Neurons.
Can model the IT Cortex as a whole or component region(s).
Population Firing Rates
Population Level Statistics
Receptive Field Centers distributions
Selectivity Distributions
Distributions of tuning profiles
Distributions of parameters of neuronal properties tuning curves
[1] At property subclass instantiation, parameters for tuning profile are specified.
[2] For each neuronal property, xx, class Neuron expects: xxProfile = profile type & xxParam = dictionary of unique tuning profile parameters. Parameters used by multiple subclasses are internally provided to each subclass.
[3] Each property subclass must define two functions: FiringRateModifier & PrintParameters.
[4] FiringRateModifier() of all tuning profiles for a specific neuronal property expect the same input. (changeable later).
[5] FiringRate() returns the average firing rate of the neuron. It assumes independent contributions from each neuronal property and multiplies the normalized firing rates of each component neuronal property and the max firing rate of the neuron.
File: InferiorTemporalNeuron.py
Class: Neuron
Individual neuronal properties modeled as subclasses and are selected from a list of available tuning profiles.
Required Params: rankedObjList, Selectivity, maxFireRate.
Class: NoProfile
If no property sublcass is defined NoProfile() is loaded. FiringRateModifier() returns 1 for all inputs and reflects complete tolerence to any inputs of this property.
Selectivity Profile
Parent Class Parameters: SelectivityProfile SelectivityParams
Class PowerLawProfile
Class Kurtosis
At the moment selectivity index is hard coded as activity fraction. Other definitions exist eg. Kurtosis. Selectivity profile is also currently hard coded to power law profile. These will be changed into the more flexible archtecture used by other neuronal properties
Position Profile
Parent Class Parameters: SelectivityProfile SelectivityParams
Class GaussianPositionProfile
File: \PositionTolerence\gaussianPositionProfile.py
Y-axis rotation Profile
Parent Class Parameters: Profile SelectivityParams
Class MultiGaussianSumProfile
File: \RotationalTolerance\multiGaussianSumProfile.py
Class UniformProfile
File: \RotationalTolerance\multiGaussianSumProfile.py
Size Tolerance Profile
Clutter & multiple objects Profile
Occlusion Profile
Single Neuron Statisitcs
LEGEND:
Solid Boxes completed.
Dashed Boxes are TBD.