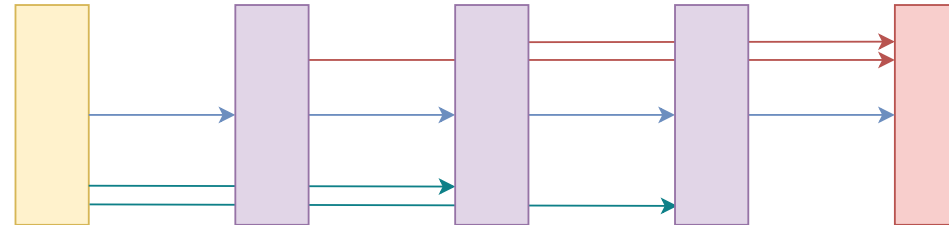
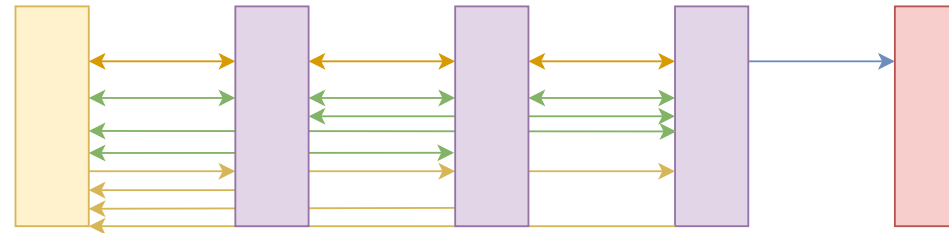


BAANN/AEANN Architecture - Breakaway/Autoencoder Generated Network Development Specification - 06 April 2025a

BAANN



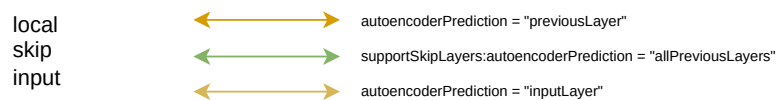
AEANN



key:



Autoencoder (unsupervised):



Breakaway (supervised):



BAANN development history summary:

2 Jul 2017: ANN 3m1a - "implement ANN_ALGORITHM_BREAKAWAY_NETWORK" [old]
(ANNAlgorithmBreakawayNetwork.cpp)

- starts with a network containing only an input and output layer
- adds a new layer after the current output layer
- trains the new net (not new layer) using full backprop

1 Nov 2021: ANNTf - "add algorithm BAANN - breakaway network"
(ANNTf2_algorithmBAANN.py)

- layers are incrementally trained using class targets
- each layer is fully connected to all previous layers (skip connections)
- network learns to better (more accurately) discriminate the class target based upon more complex inferences performed by higher layers

20 Aug 2024: AEANNpt - "start option useBreakaway (BAANN) - also condition training of new hidden layers on directly connected output (not just useAutoencoder)"

2 Jan 2025: AEANNpt - "make useAutoencoder and useBreakaway options independent"