

# LUANN Architecture - Exponentially Divergent Shared Substrate Development

## Specification - 19 Feb 2022

input layer

hidden layers  
shared units =  
shared layers

outputs / class targets

train output layer:  
supervised backprop/hebbian

input layer

hidden layers:  
shared units =  
shared neurons /  
shared sublayers

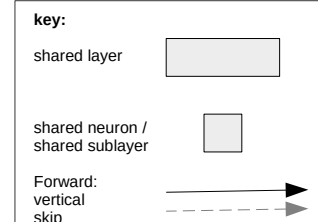
outputs / class targets

train output layer:  
supervised backprop/hebbian

Large untrained  
artificial neural network  
(optional local adaptation;  
see for example LIANN; greedy  
vicreg etc)

**biological implementation:**

- shared units have single physical position in network
- network is wired accordingly (forward/reverse connections)
- connectivity is sufficiently sparse and activations are sufficiently asynchronous such that multiple pathways do not severely interfere/interact (at time t)



shareComputationalUnitsLayers does not currently support skip layer connections to input layer (which has different layer size)