

# Convolution

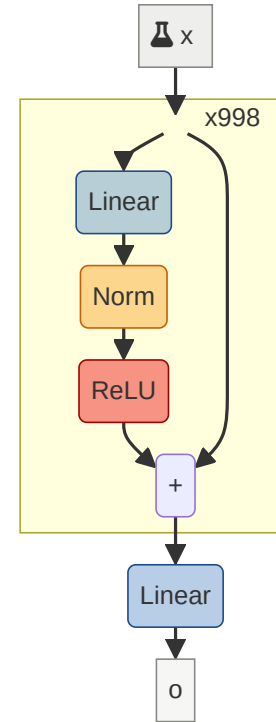
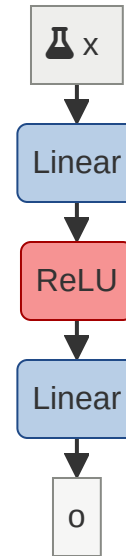
# Thus Far - Fully Connected Networks

## Fully Connected Deep Networks

- Non-linearities (ReLU, ELU, GELU, ...)
- Normalization, residual connections
- Learned components = linear layers
  - Matrix multiplication
  - Fully-connected

## Limitations

- ⚙️ Computationally inefficient
- 📦 Memory inefficient
- 🗄️ Data inefficient



# Convolutions

Replacement for Linear Layers

⚡ More efficient parameterization

