

SOLVING INVERSE PROBLEMS ON AN INFINITE DOMAIN

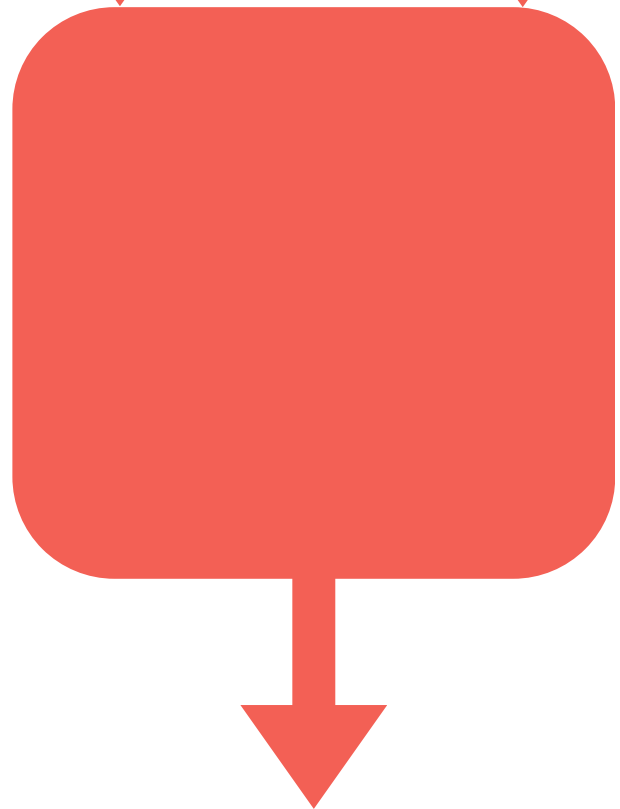
Using machine learning techniques

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What is an Inverse Problem?

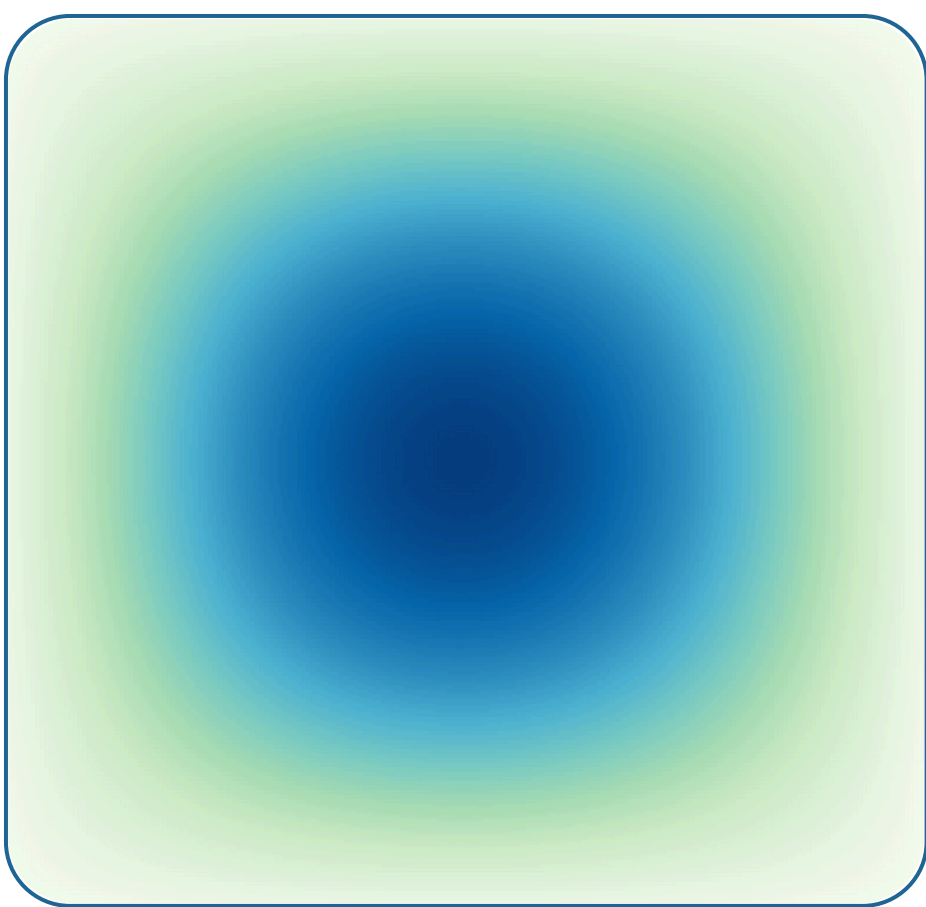
$$\nabla \cdot (k \nabla u) = f$$

Physical Laws
Observed Data



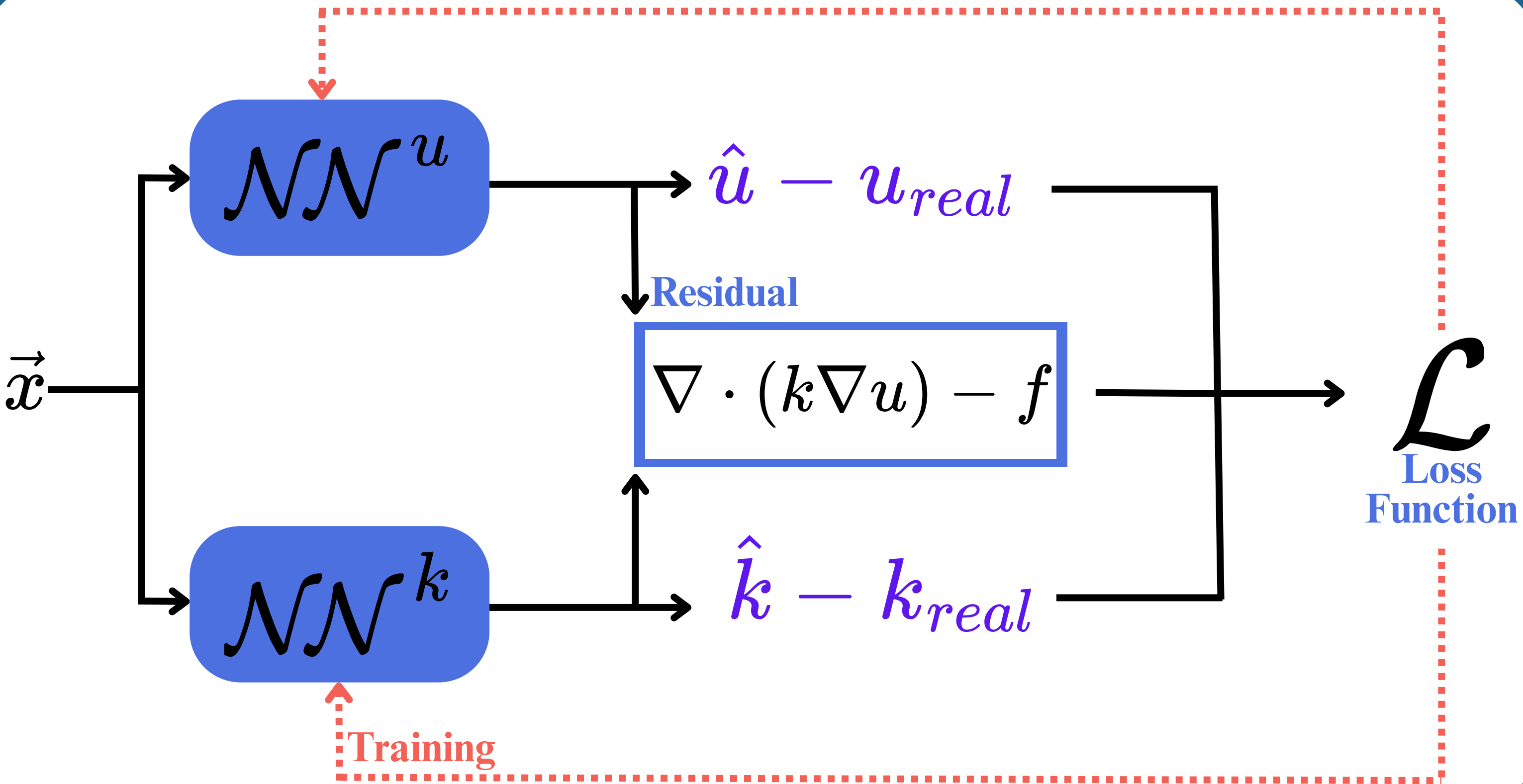
Parameters

Poisson's Equation

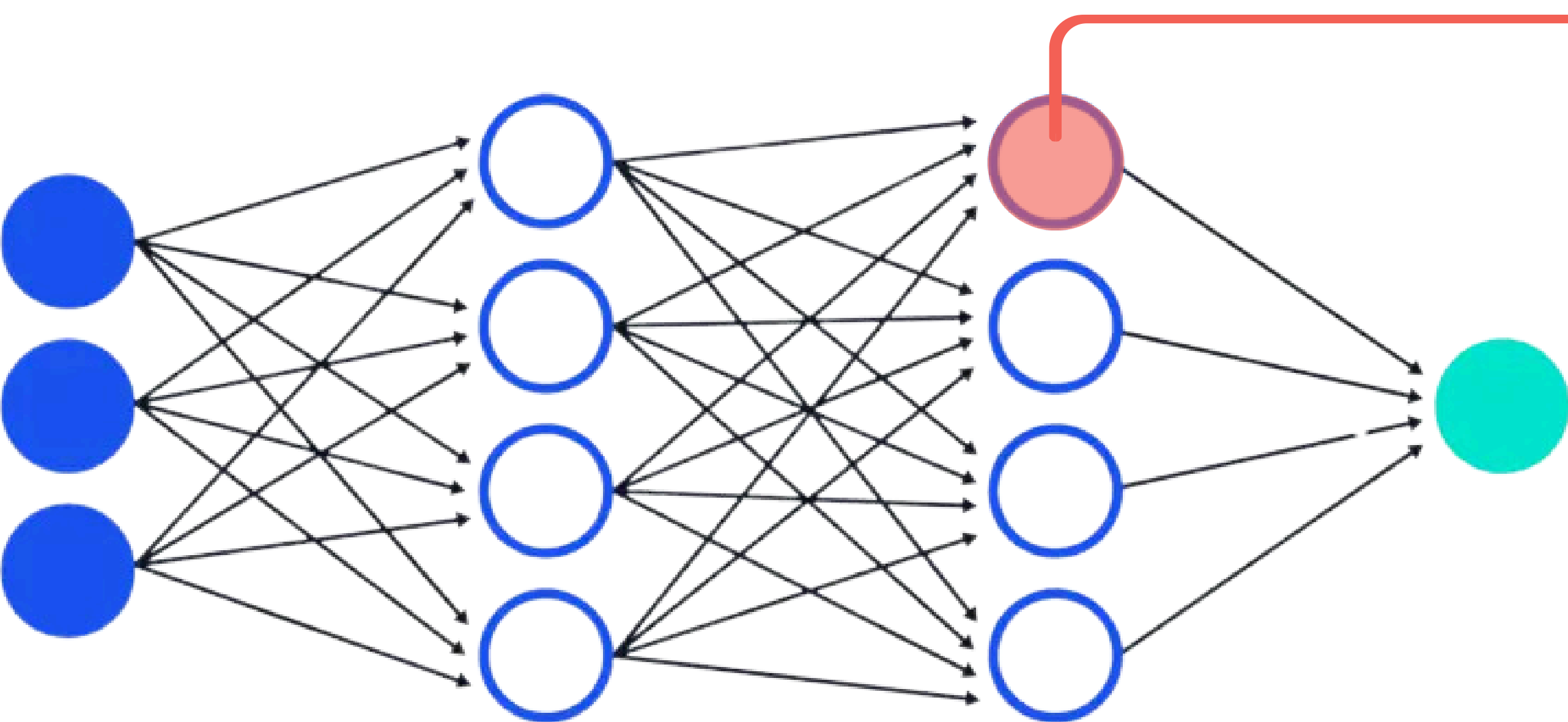


- Heat transfer
- Electrostatics
- Relativity

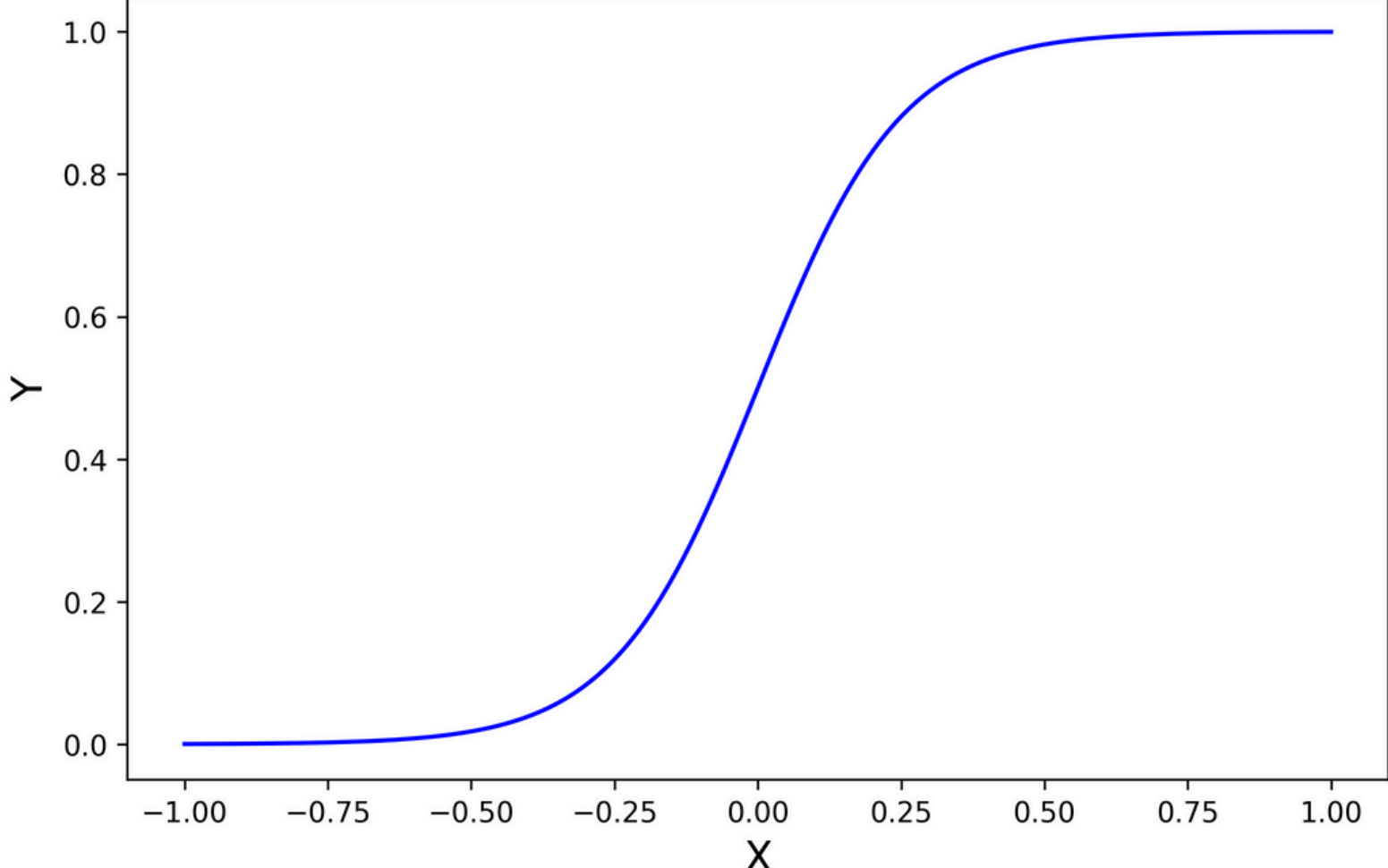
Network design



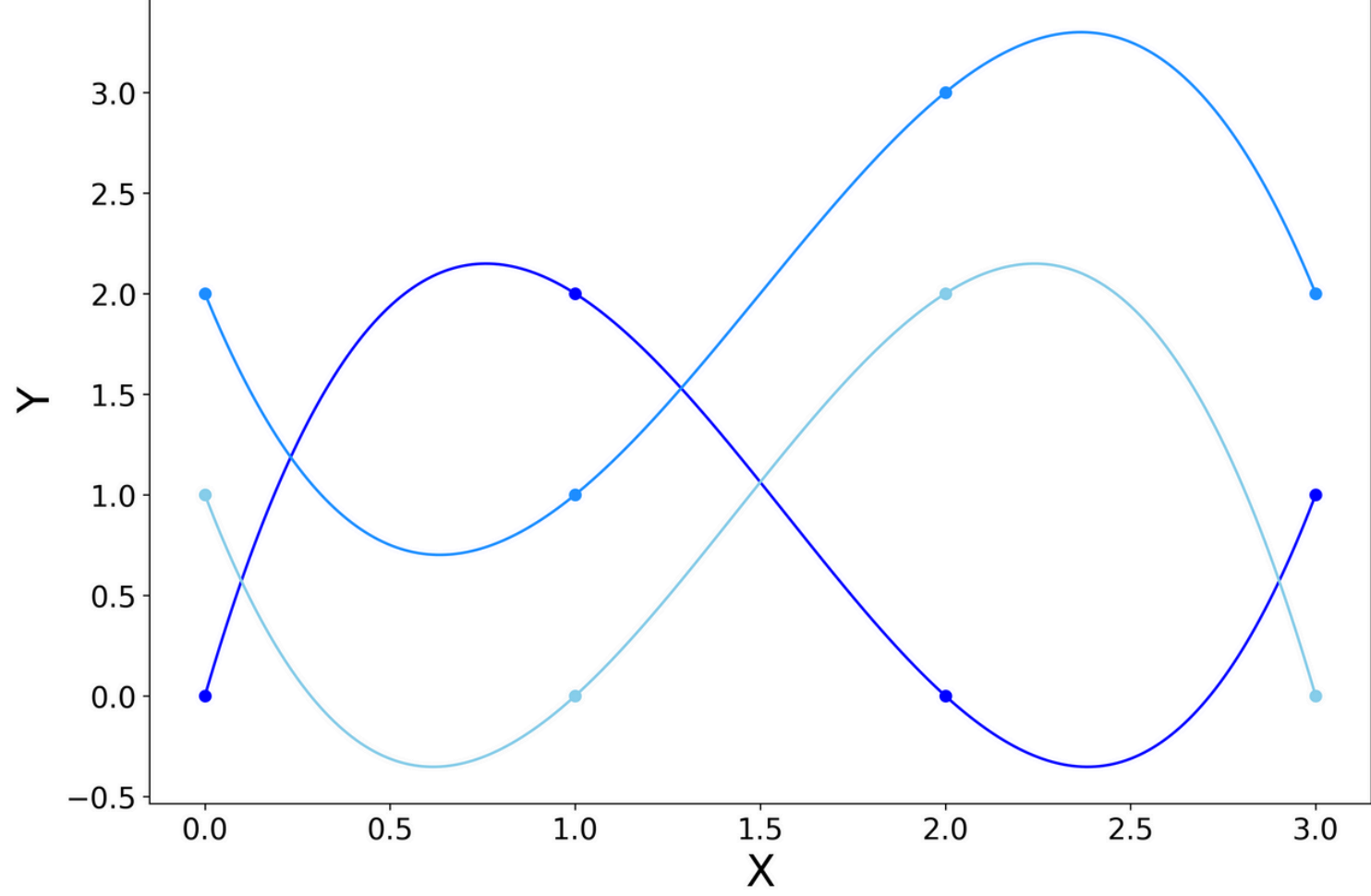
Architectures considered



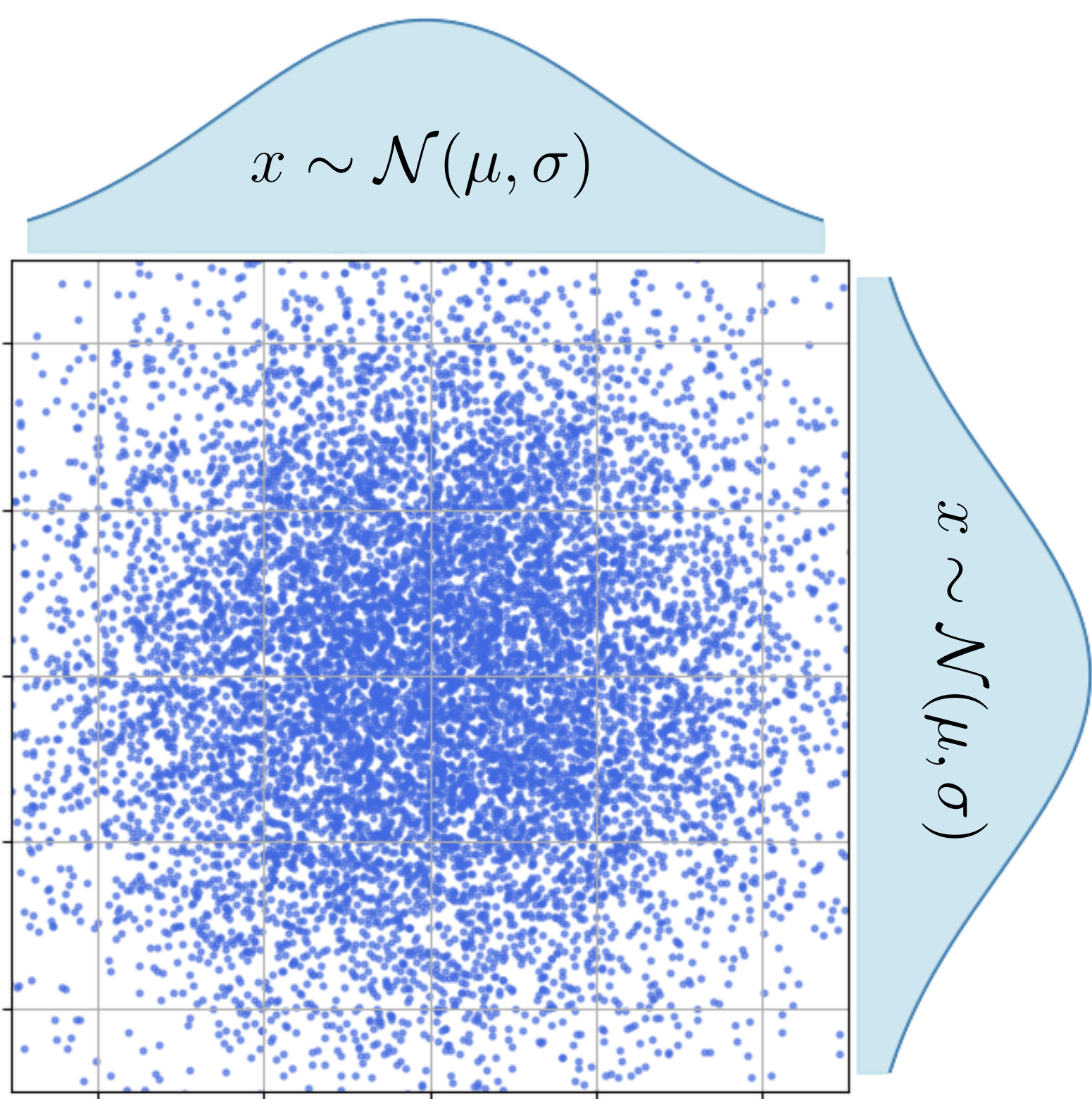
Activation function for neural network



Activation Functions for KAN



Sampling of training points

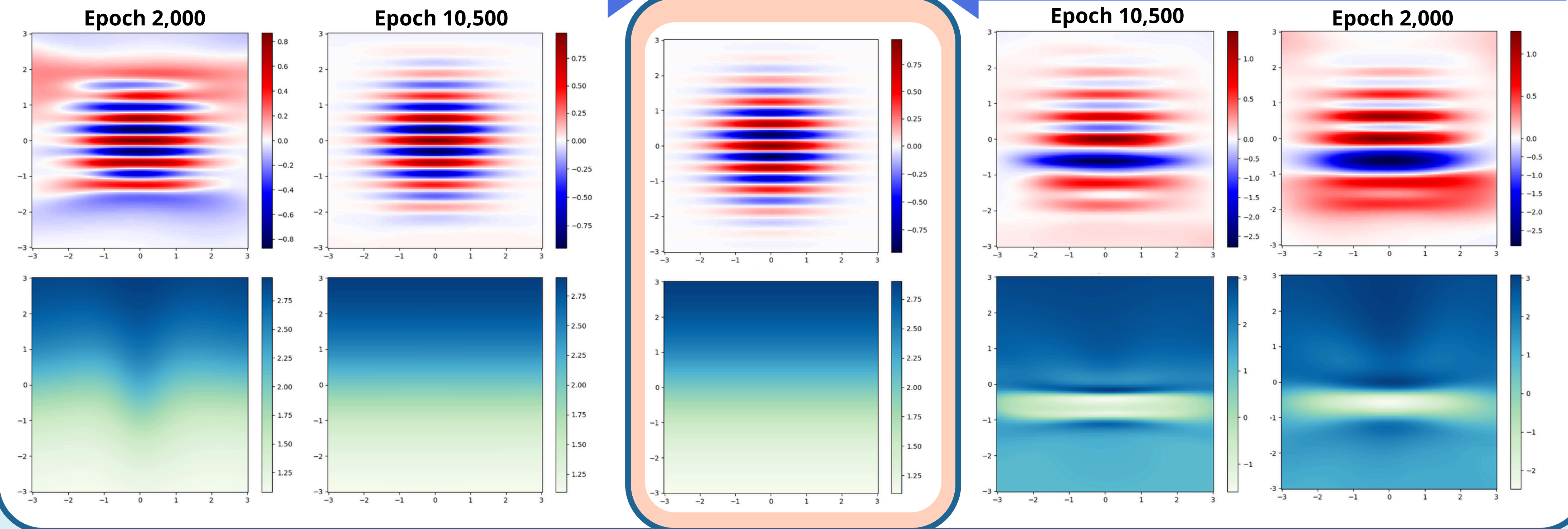


Training

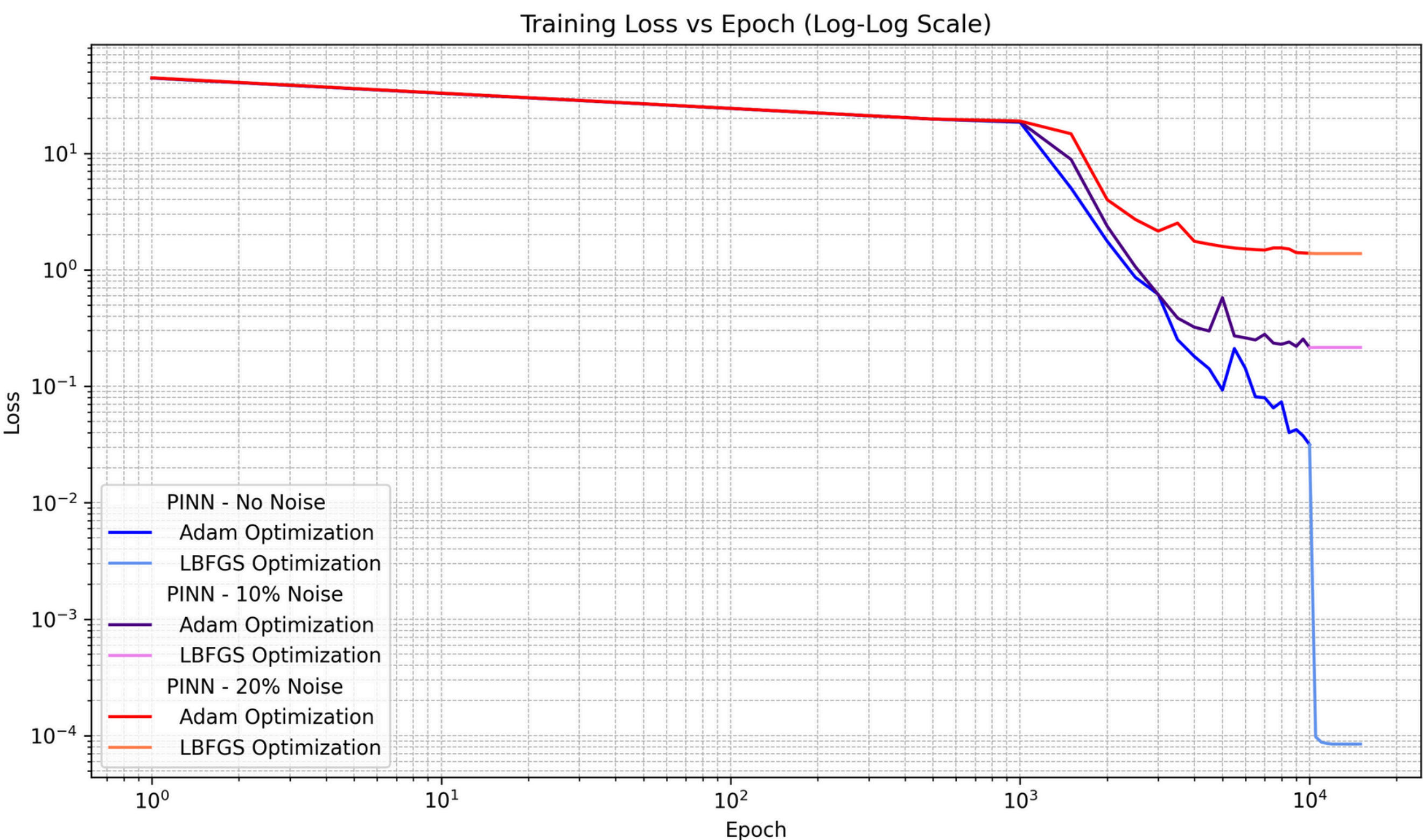
PINN Training

Analytical Solution

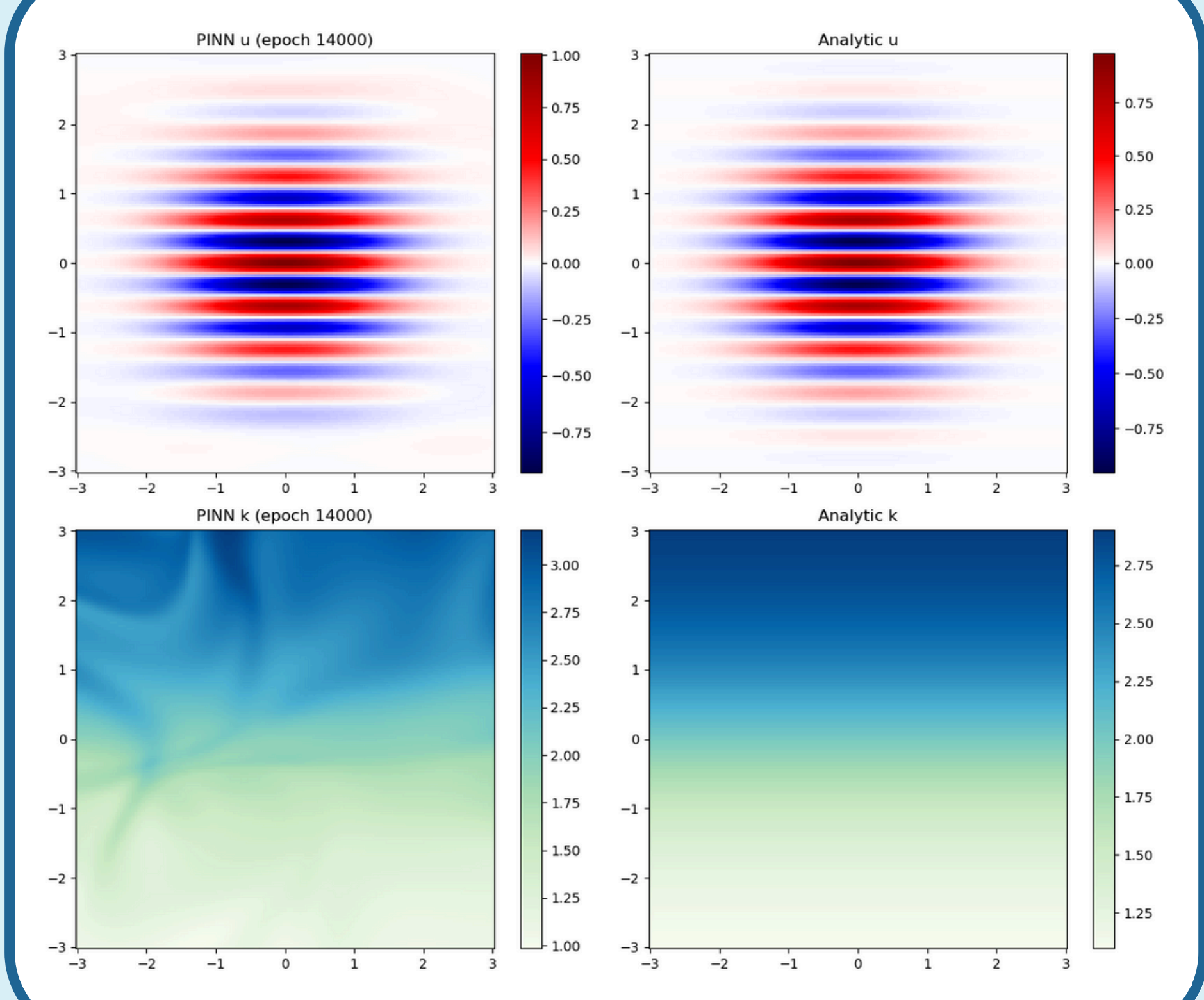
KAN Training



Two-Step optimization



Performance under 20% noise



Want to learn more?

Aqui va un qr al repo

