

7.7

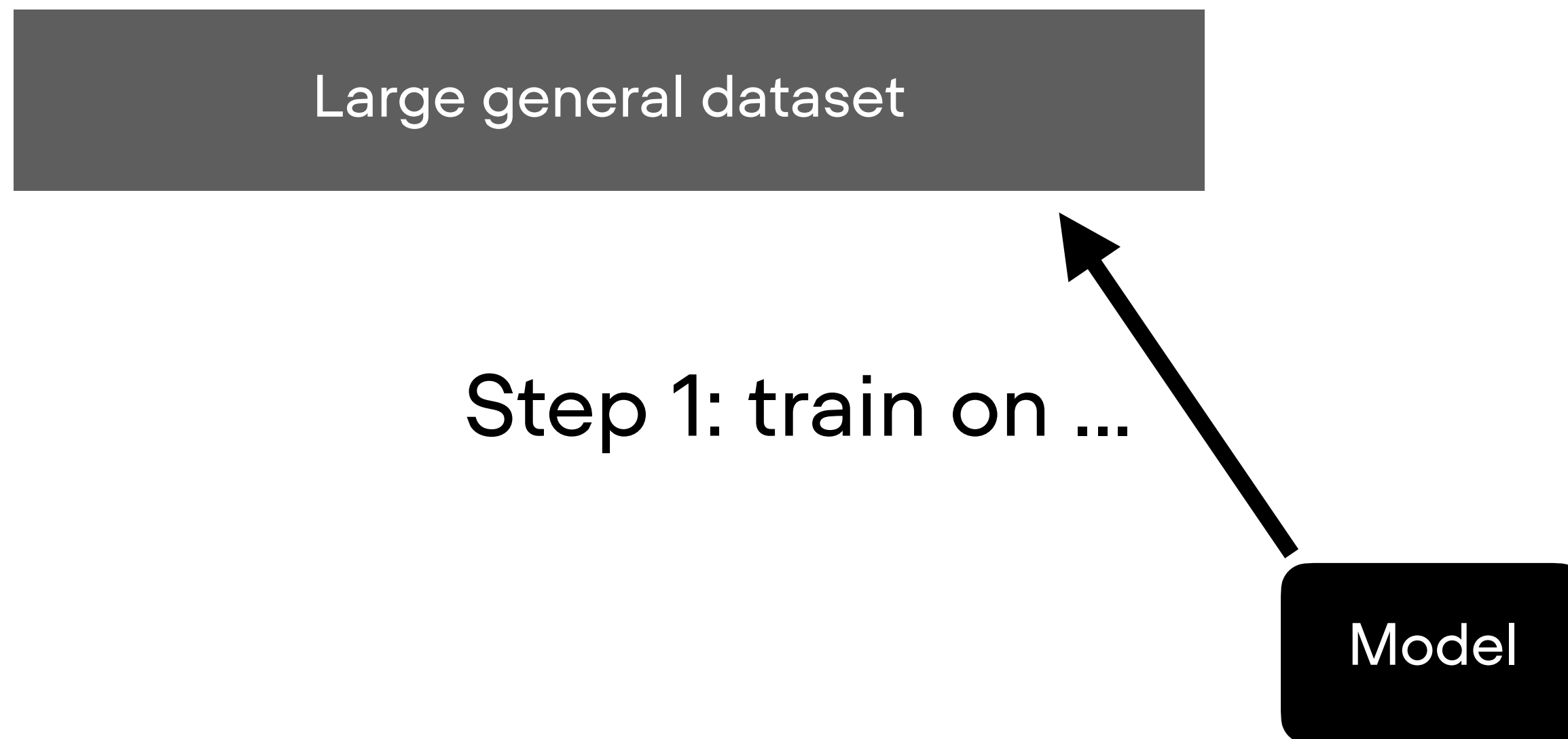
Leveraging Pre-trained Models with Transfer Learning

Part 1: Transferring Knowledge From Large Datasets

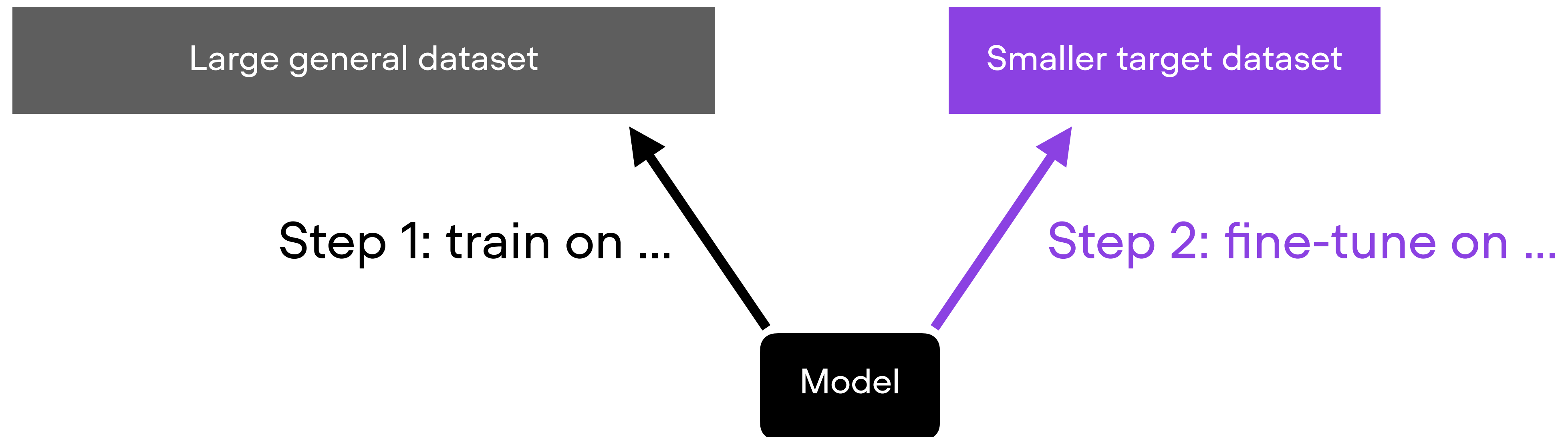
Sebastian Raschka and the Lightning AI Team

Transfer learning is a 2-step procedure
to help us leverage general knowledge
from larger datasets

Transfer learning



Transfer learning

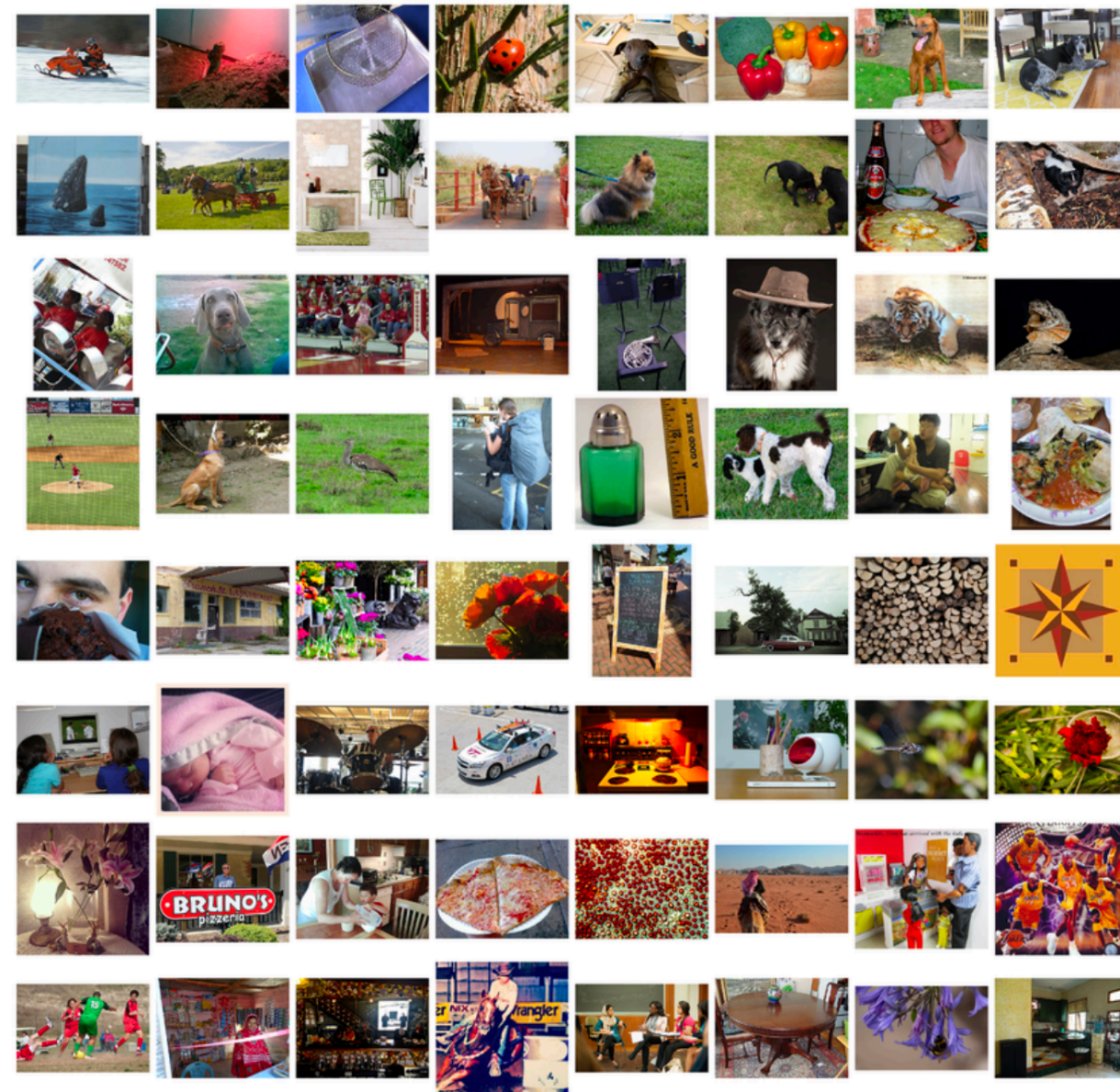


Key idea behind transfer learning

Feature extraction layers may be generally useful

Large general dataset

For example, ImageNet



Smaller target dataset

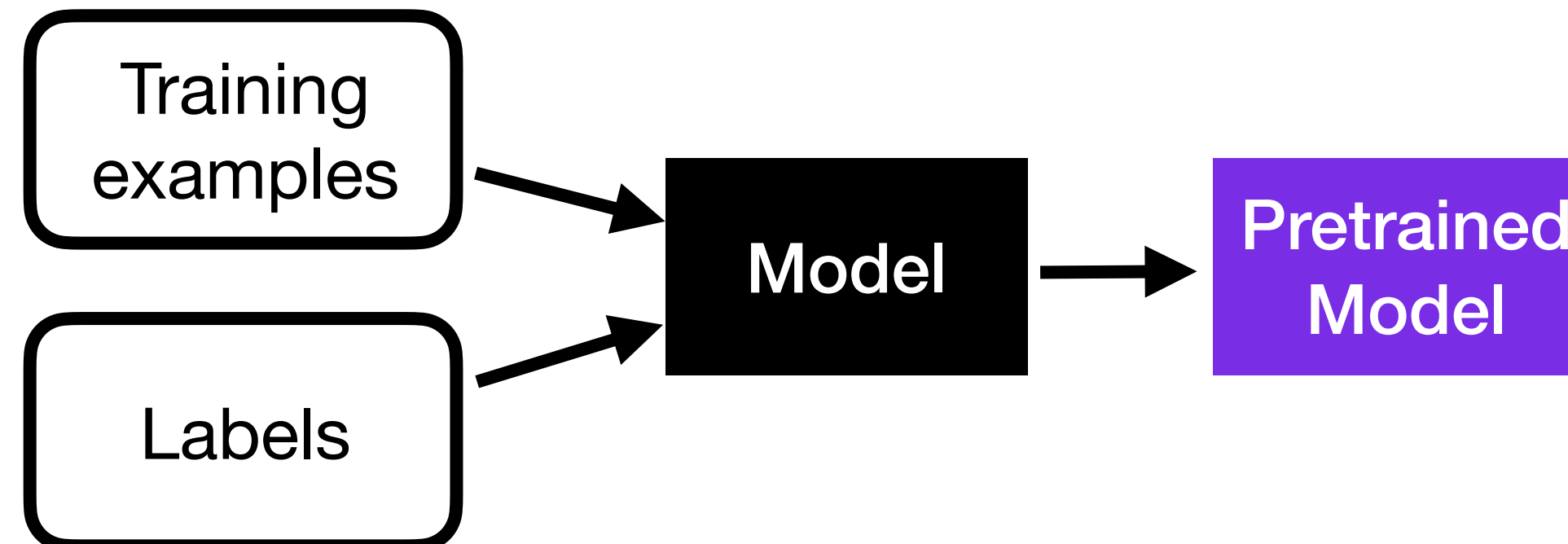
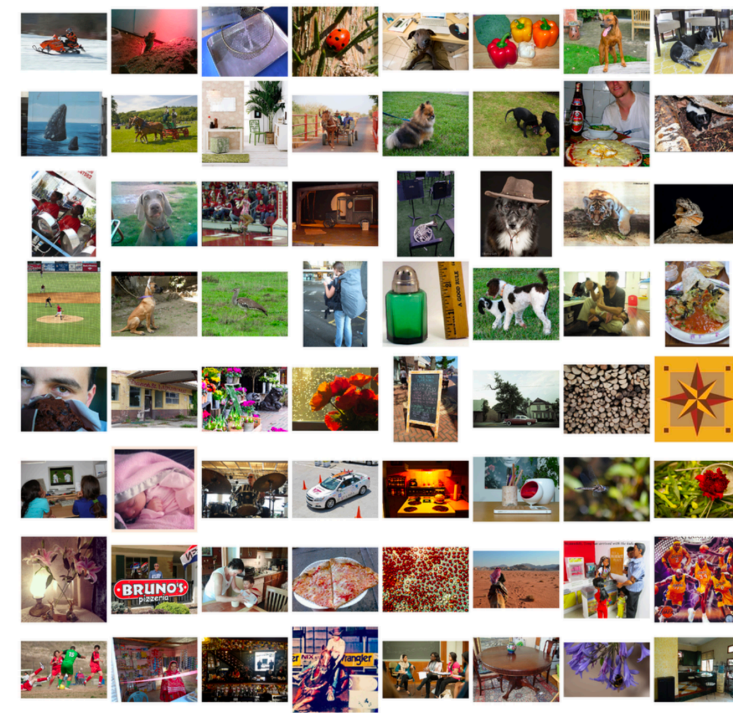
For example, different goldfinch species



Self-supervised learning versus transfer learning

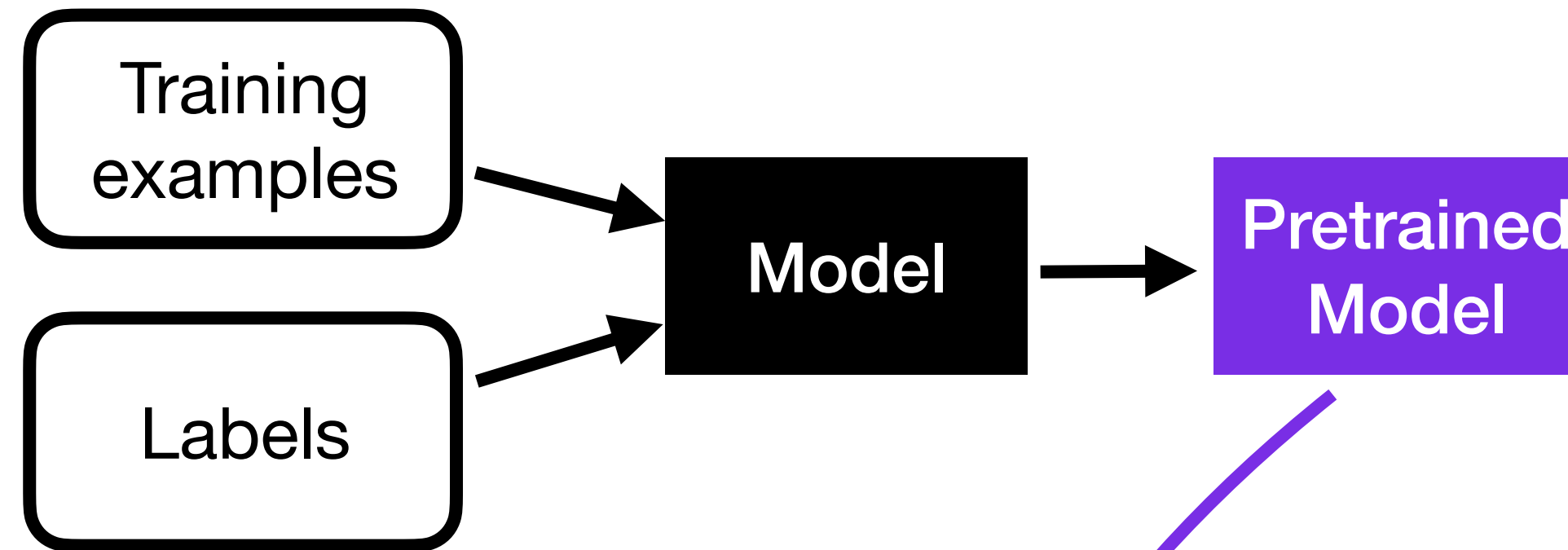
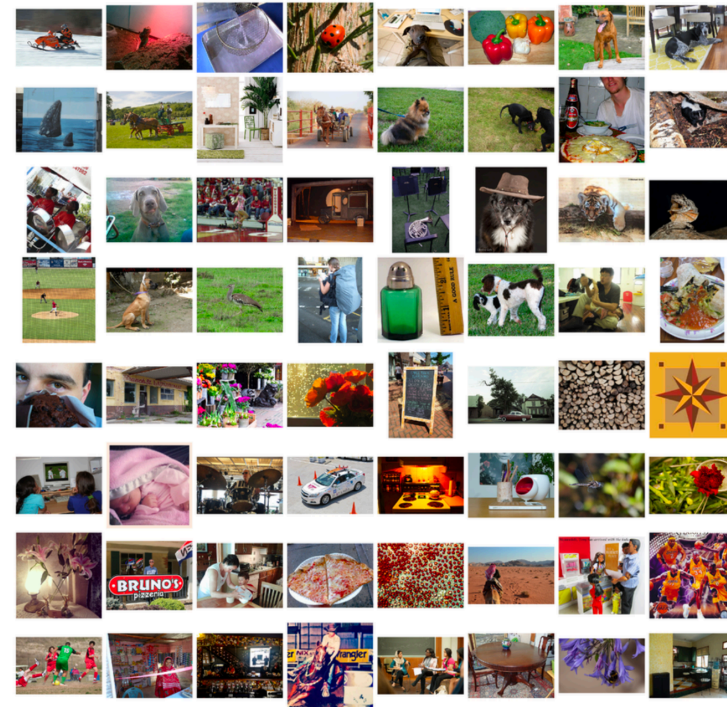
Transfer Learning

Large, general dataset

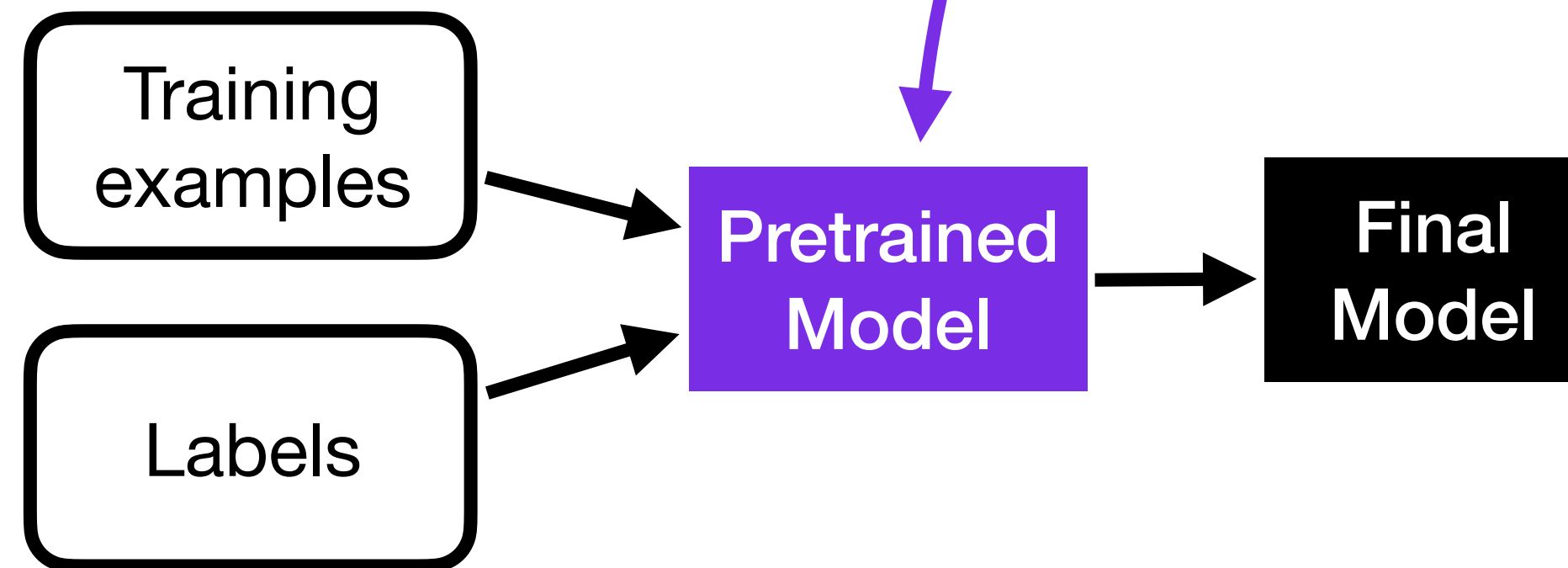


Transfer Learning

Large, general dataset

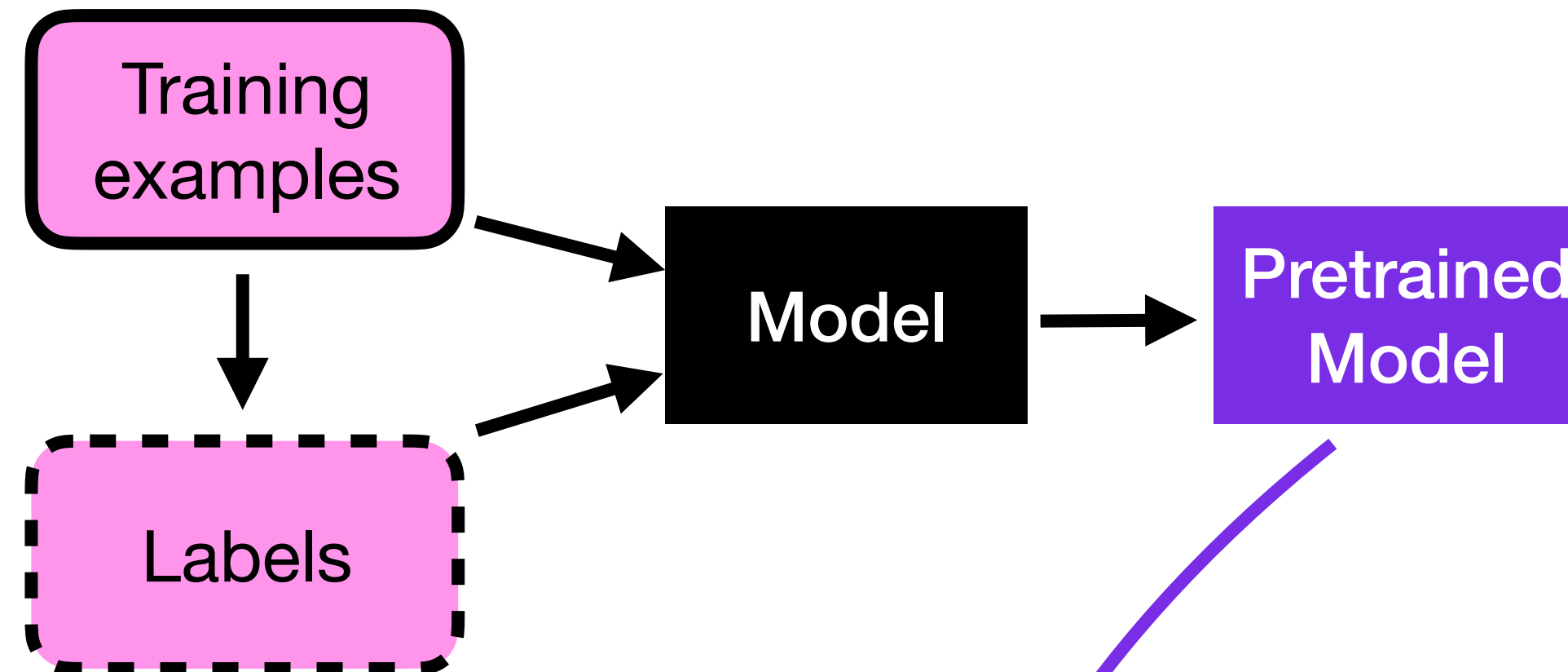
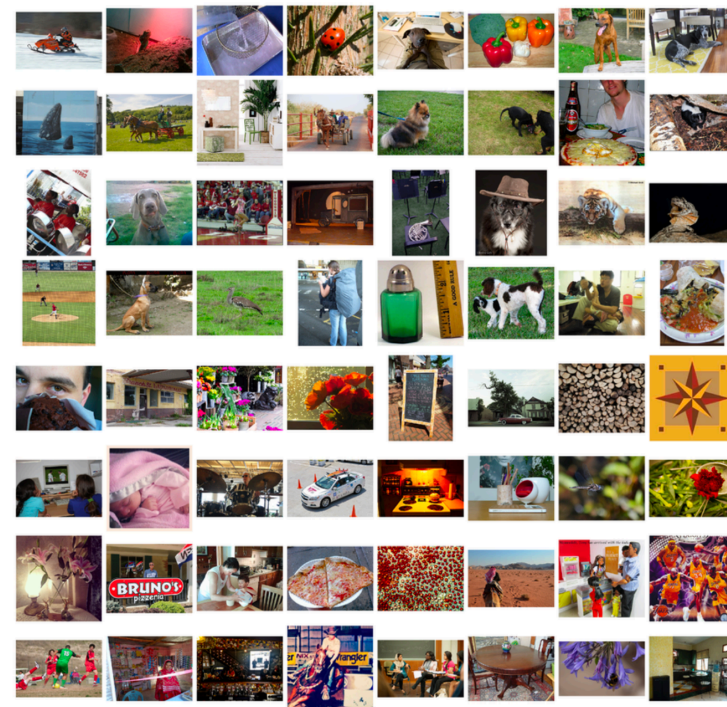


Target-specific dataset

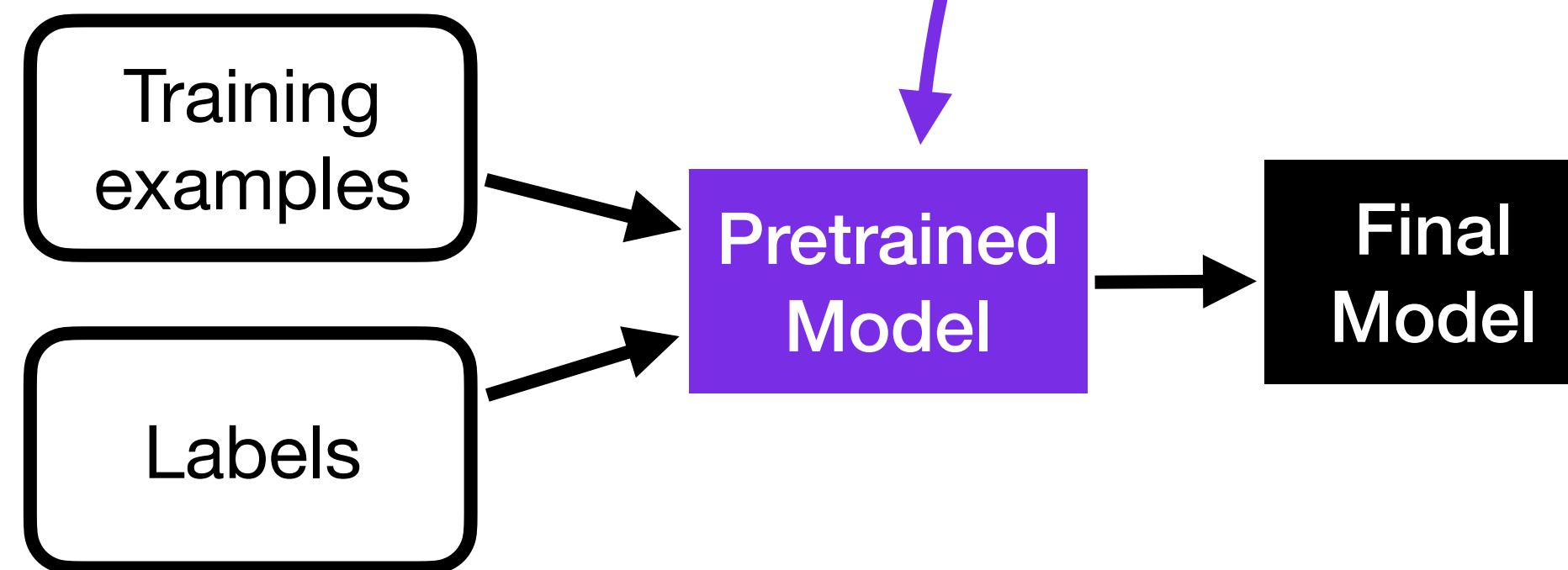


Self-Supervised Learning

Large, general dataset



Target-specific dataset



In self-supervised learning
we “generate” the labels
from the features

Next: Types of self-supervised learning