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Title: Predictive Coding, Variational Autoencoders, and Biological Connections

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Abstract: We review predictive coding, from theoretical neuroscience, and variational autoencoders, from machine learning, identifying connections between these areas. These connections imply striking correspondences between machine learning and biological neural circuits, suggesting that pyramidal dendrites are functionally analogous to non-linear deep networks and lateral inhibition is functionally analogous to normalizing flows. Connecting these areas provides new directions for further investigations.