10 minutes

4 slides

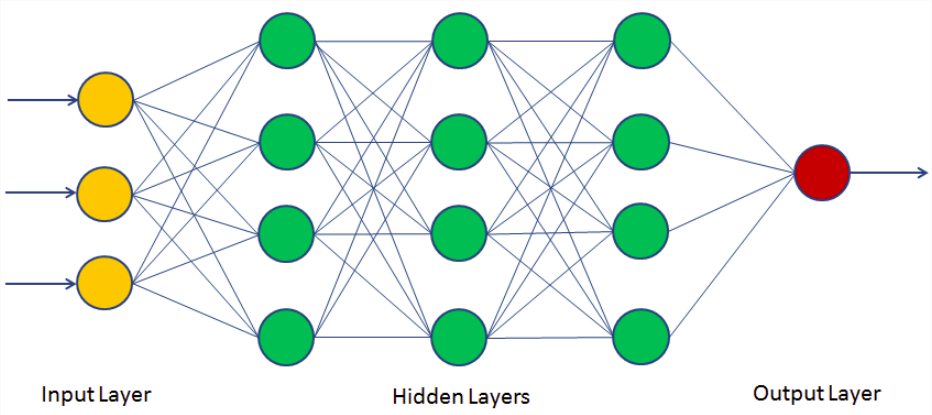
15 images

Frederik Hvilshøj — Data-Intensive Systems Group

Computer Science *and* Electrical and Computer Engineering

Ira Assent *and* Alexandros Iosifidis

What is an Explanation?



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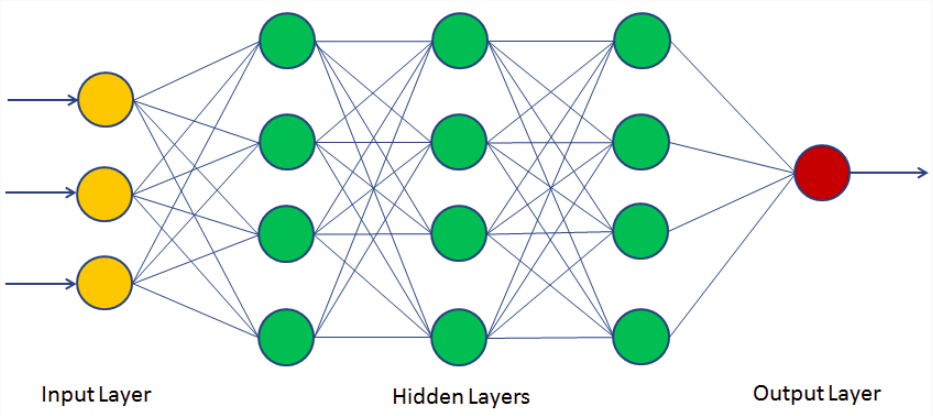

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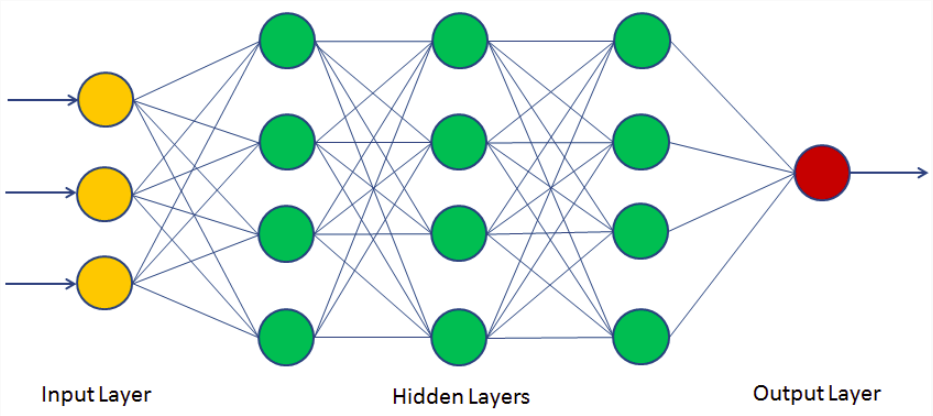

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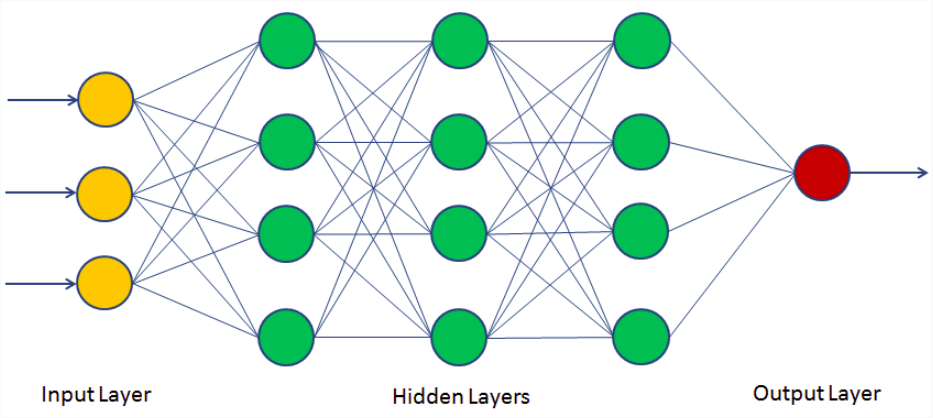

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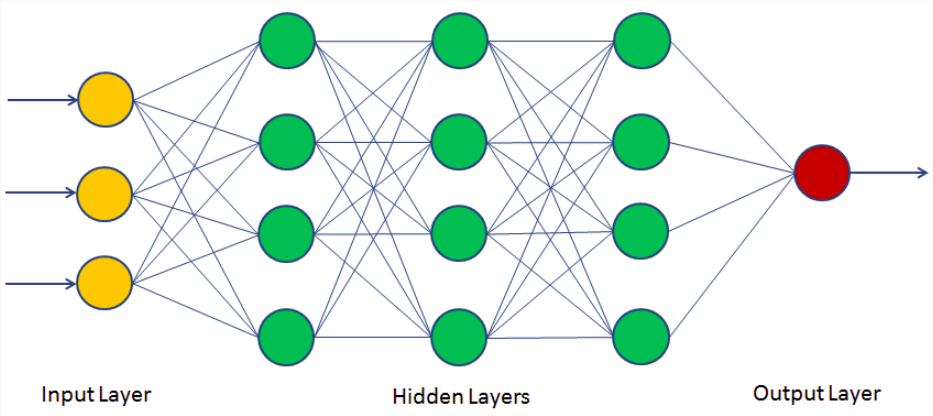

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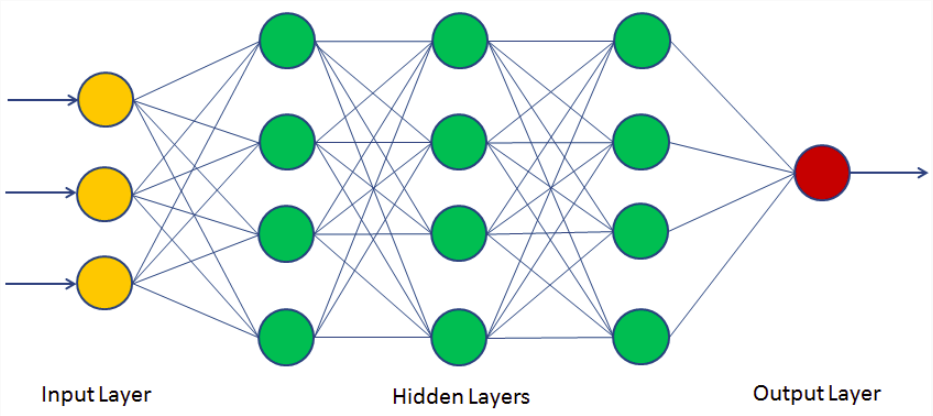

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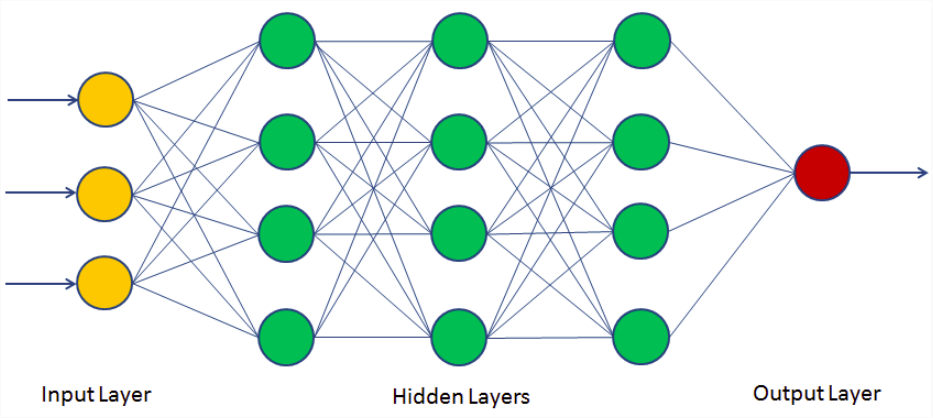
How do we change the prediction?

What is an Explanation?



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How do we change the prediction?

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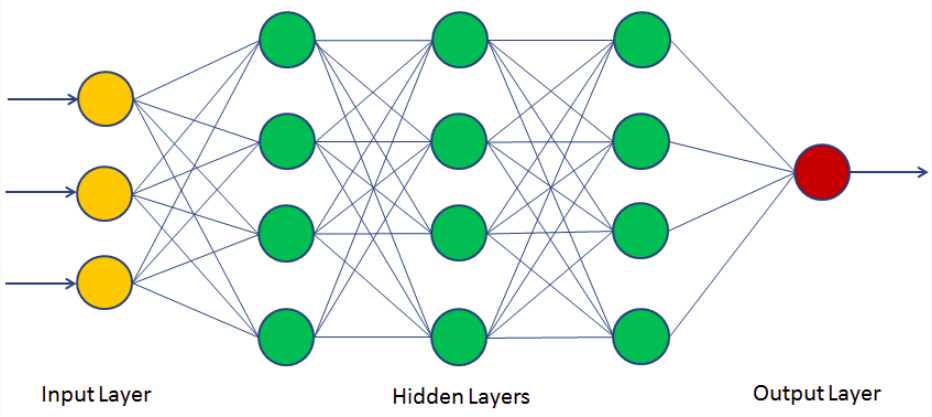

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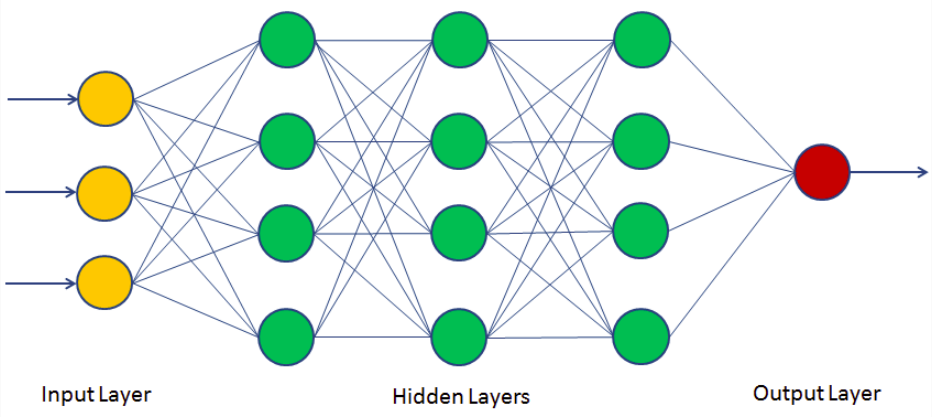

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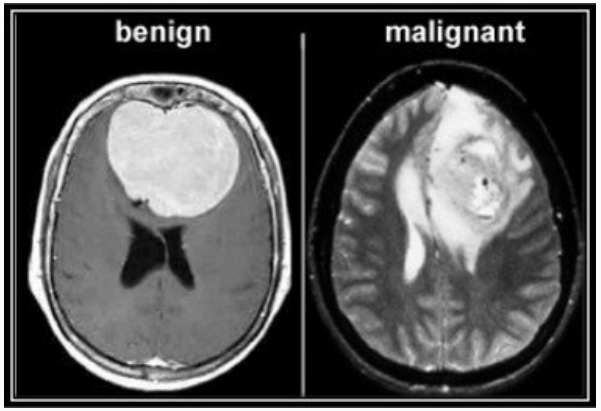

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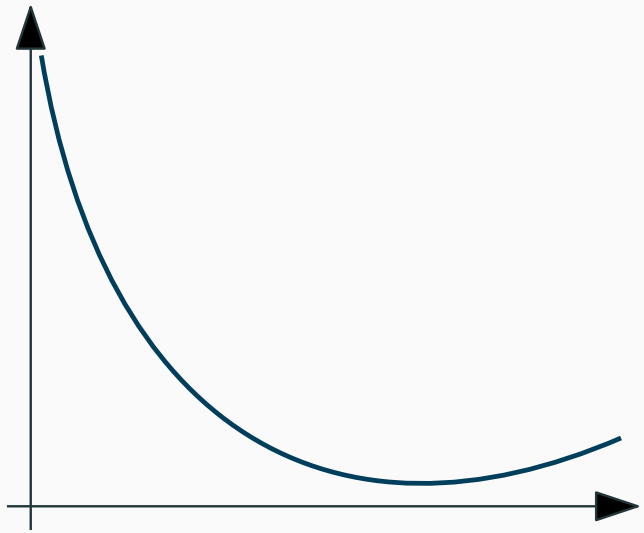

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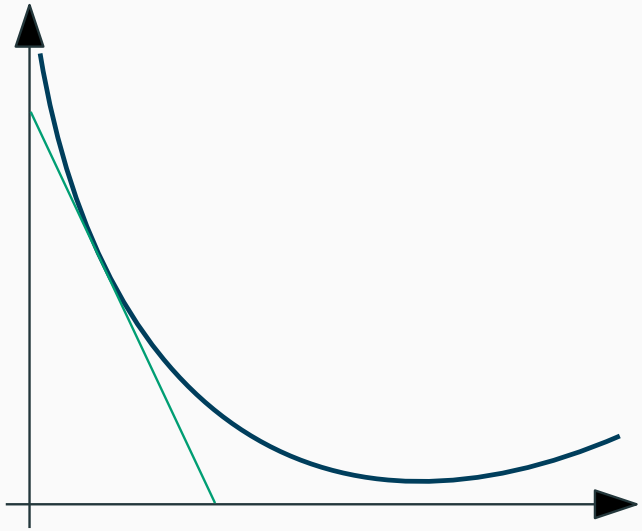

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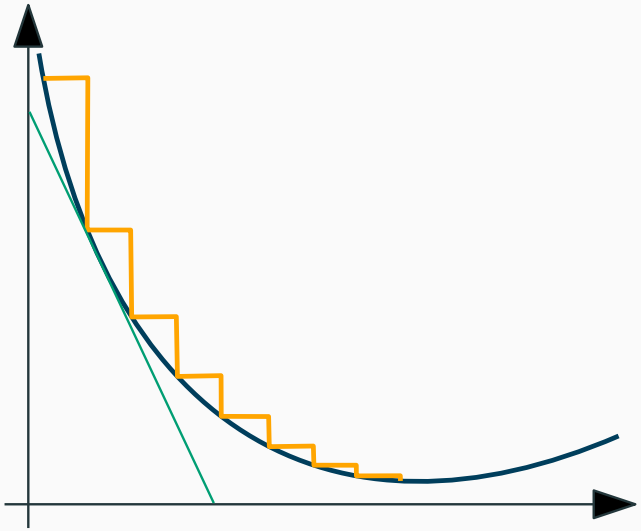

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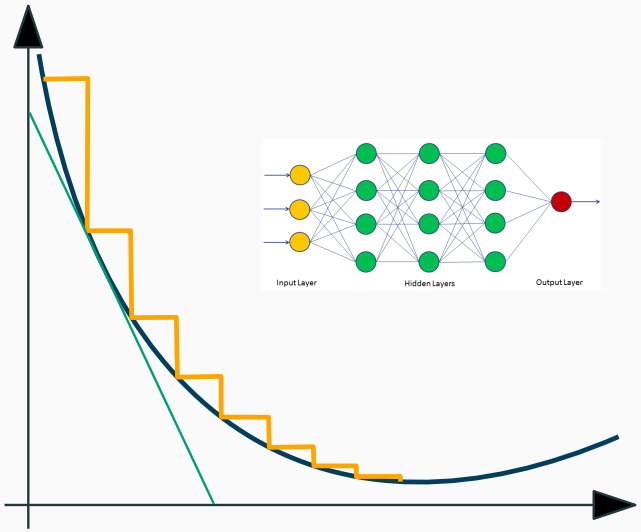

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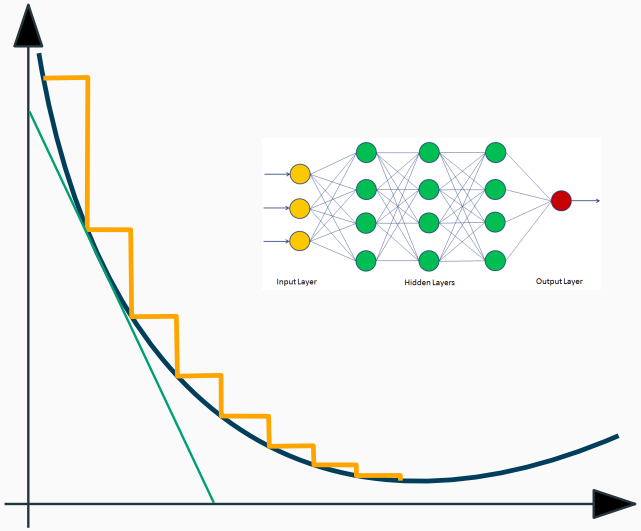

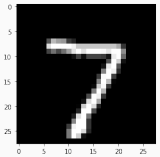

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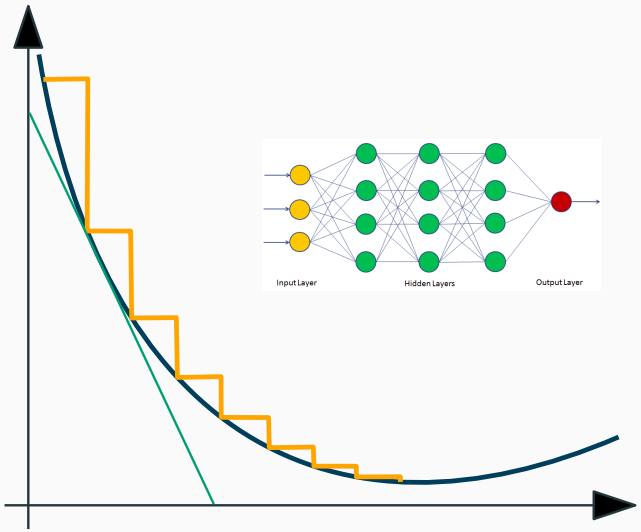

Interpretable counterfactual explanations guided by prototypes

A Van **Looveren**, J Klaise - arXiv preprint arXiv:1907.02584, **2019** - arxiv.org

We propose a fast, model agnostic method for finding interpretable counterfactual explanations of classifier predictions by using class prototypes. We show that class prototypes, obtained using either an encoder or through class specific kd trees, significantly speed up the the search for counterfactual instances and result in more interpretable explanations. We introduce two novel metrics to quantitatively evaluate local interpretability at the instance level. We use these metrics to illustrate the effectiveness of our method on an …

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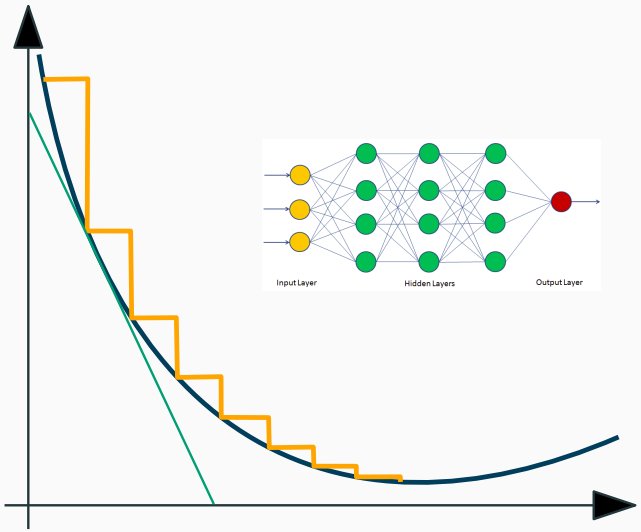

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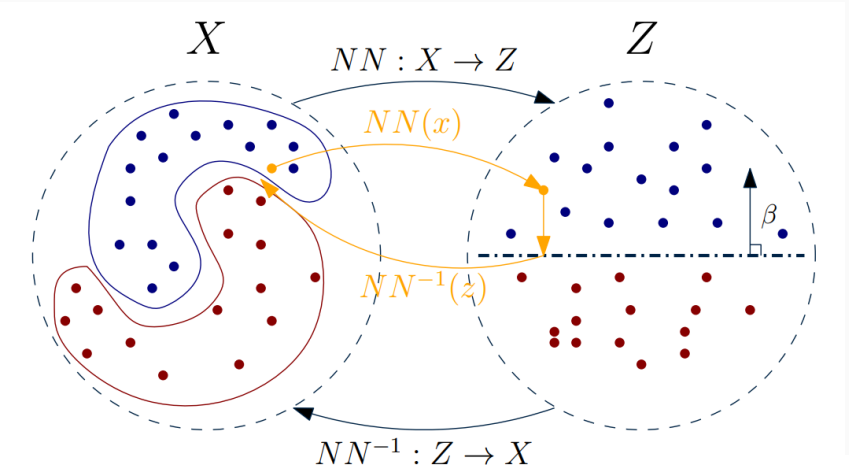

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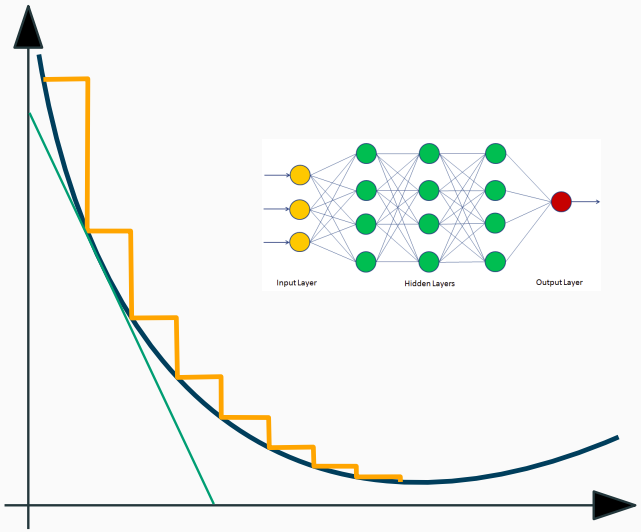

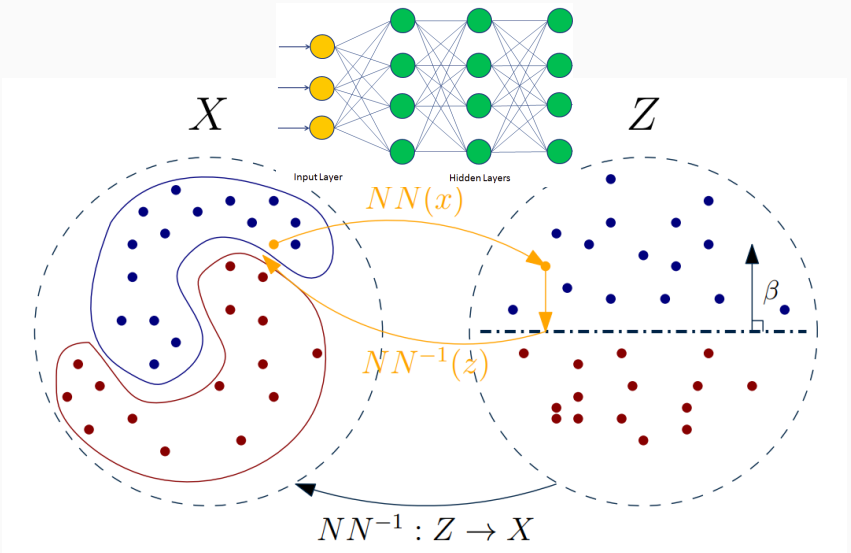

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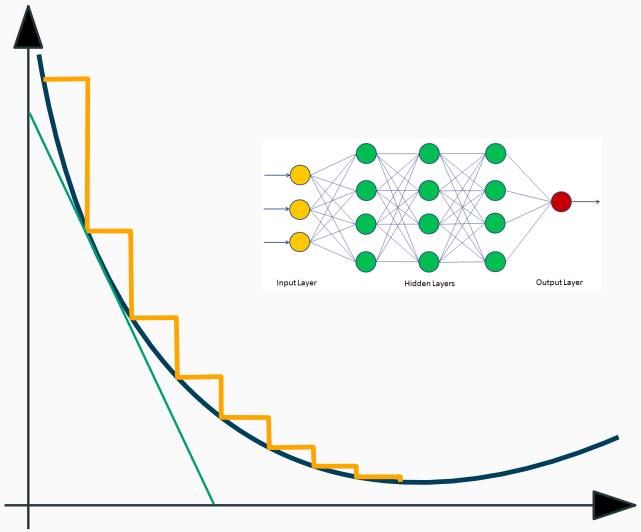

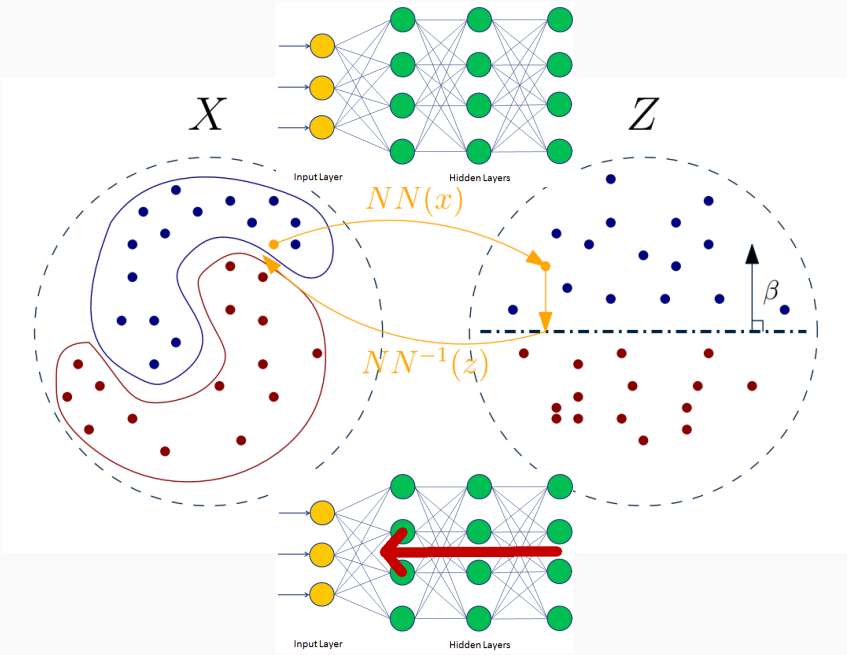

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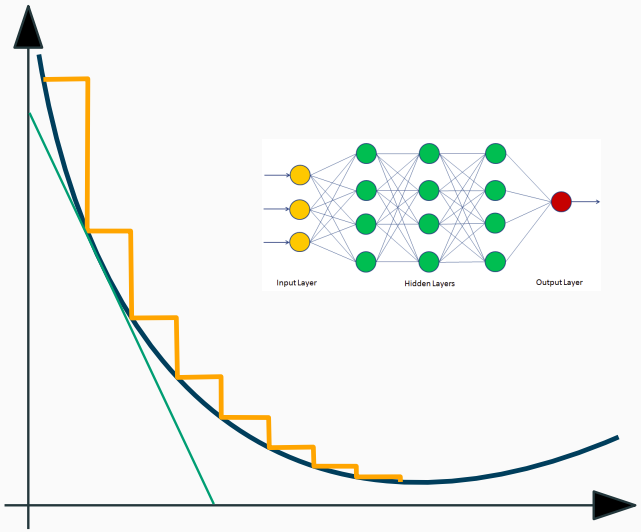

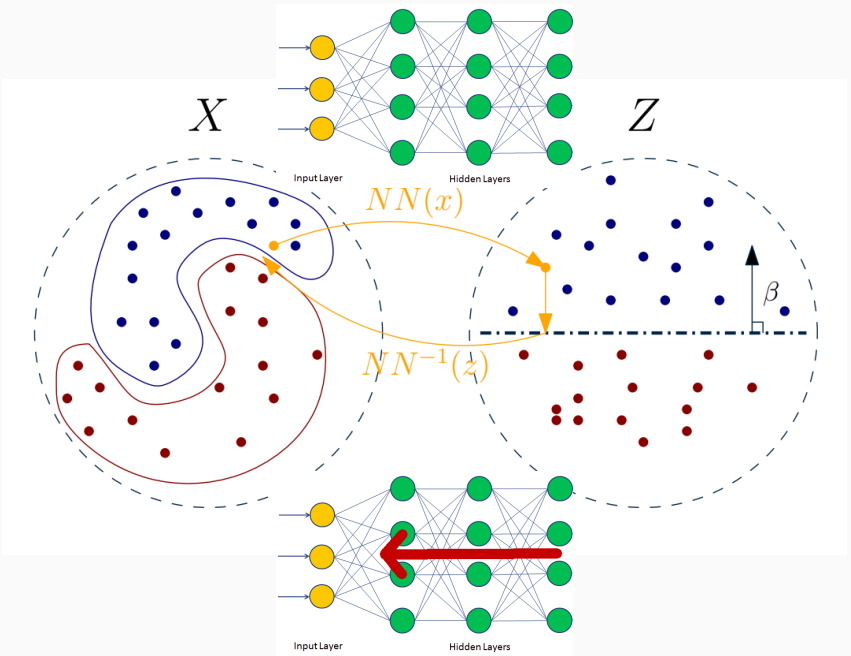

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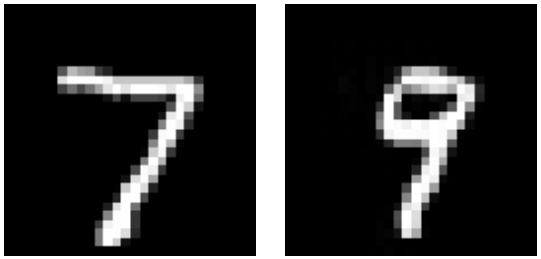
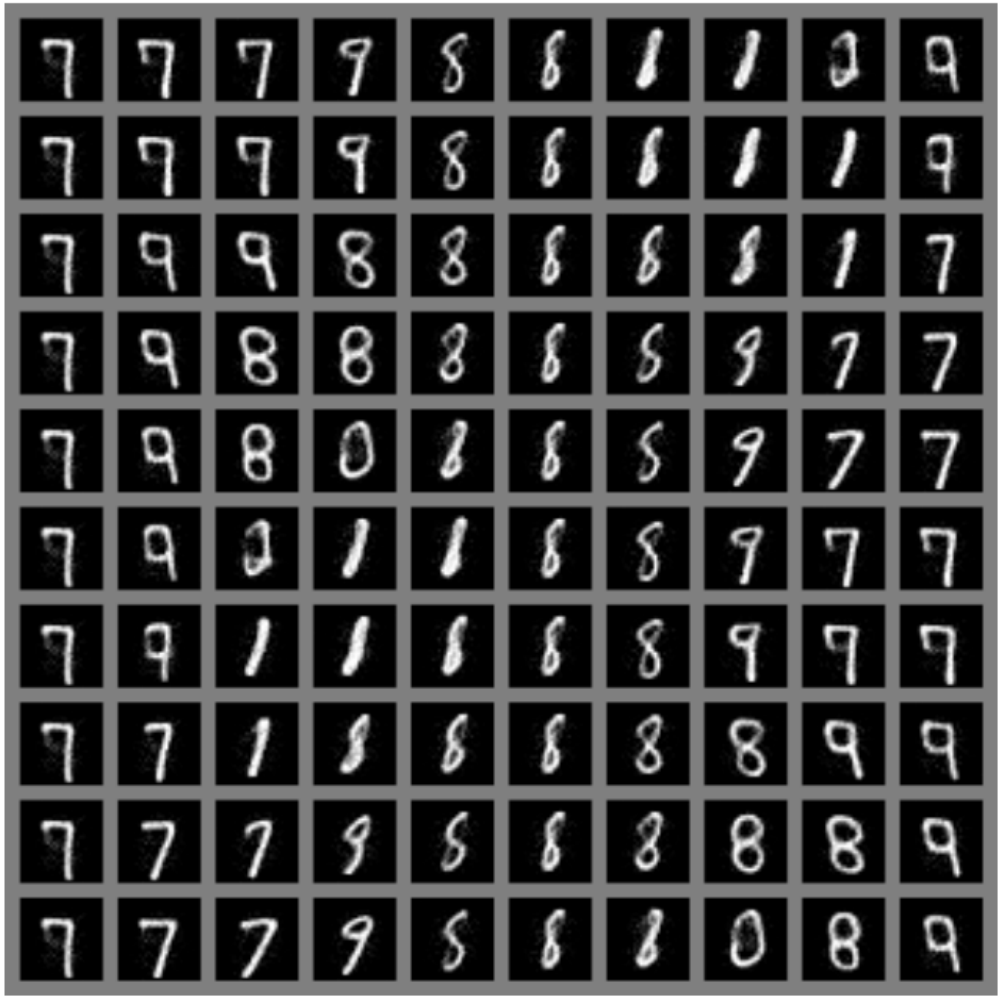


Why should this work?



Nice: **Non-linear independent components** estimation

L Dinh, D Krueger, Y Bengio - arXiv preprint arXiv:1410.8516, 2014 - arxiv.org

… **independent** dimensions), then we obtain the following **non-linear independent components** estimation (NICE … Directed graphical models lack the conditional **independence** structure that … is used more successfully in nonlinear **independent components analysis** (Hyvärinen and …

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Why should this work?

Density estimation using real nvp

L Dinh, J Sohl-Dickstein, S Bengio - arXiv preprint arXiv:1605.08803, 2016 - arxiv.org

Unsupervised learning of probabilistic models is a central yet challenging problem in machine learning. Specifically, designing models with tractable learning, sampling, inference and evaluation is crucial in solving this task. We extend the space of such models …

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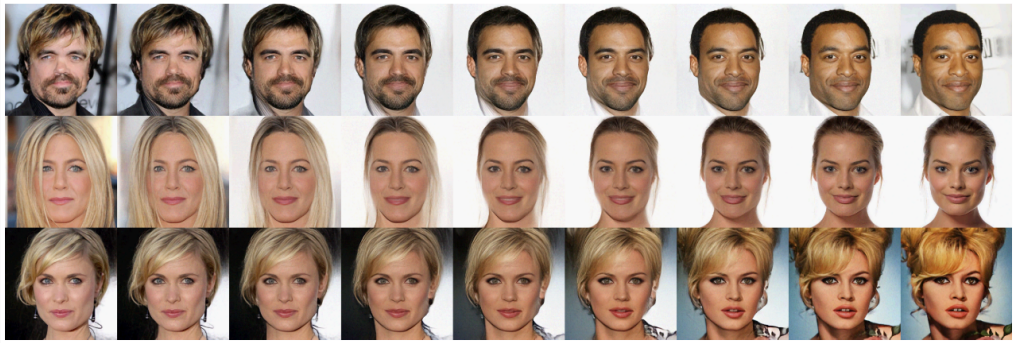
Why should this work?



Glow: **Generative flow** with invertible 1x1 convolutions

DP Kingma, P Dhariwal - arXiv preprint arXiv:1807.03039, 2018 - arxiv.org

Flow-based **generative** models (Dinh et al., 2014) are conceptually attractive due to tractability of the exact log-likelihood, tractability of exact latent-variable inference, and parallelizability of both training and synthesis. In this paper we propose **Glow**, a simple type …

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So does it work?

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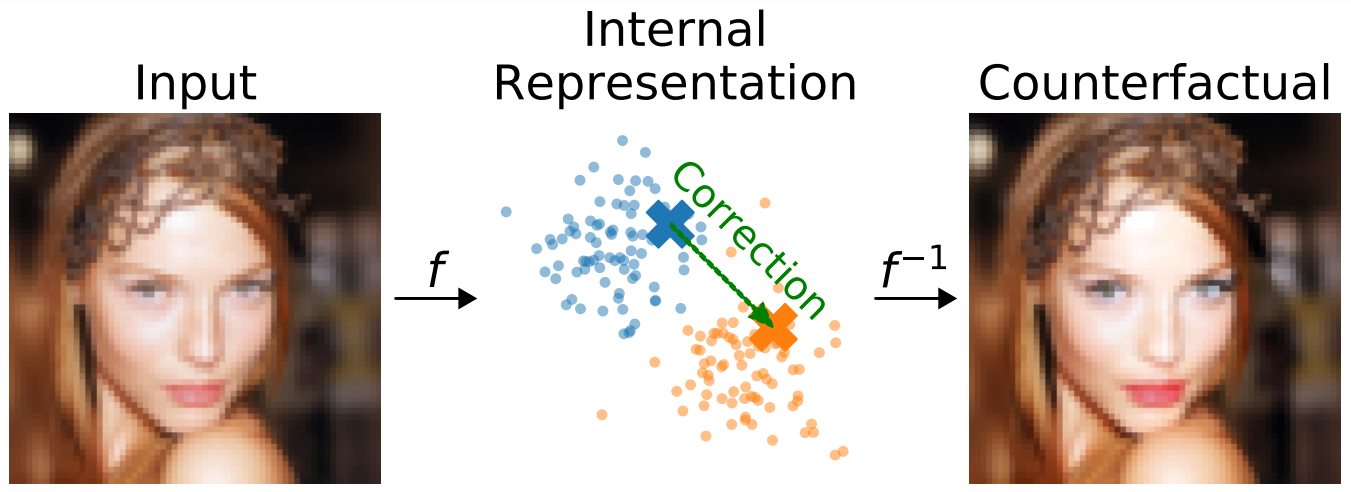

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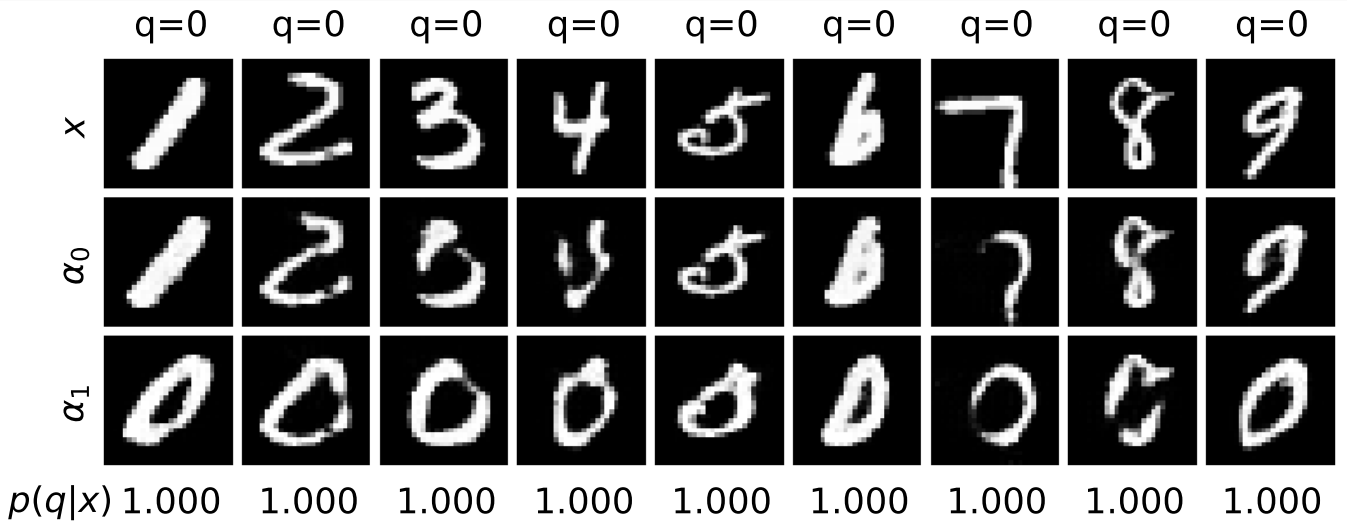

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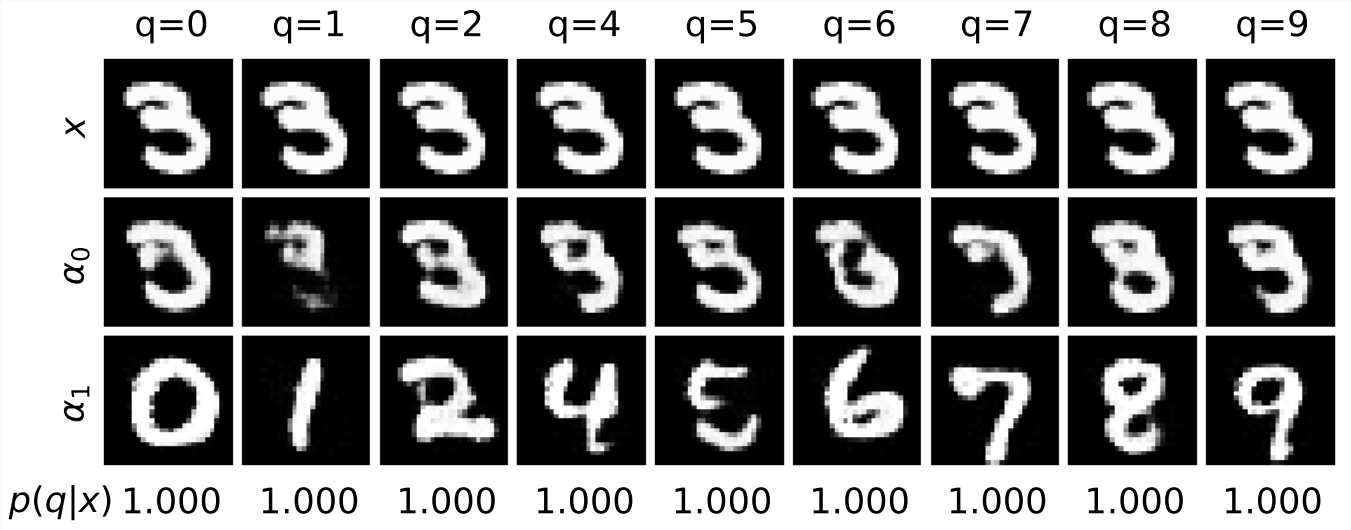

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