

Deep Probabilistic Programming

- ▶ Deep Generative Model
- ▶ Deep Probabilistic Model
- ▶ Deep Probabilistic Program

Variational Autoencoder

- ▶ Prototypisches Deep Generative Model (2013)
- ▶ Encoder Network und Decoder Network
- ▶ bzw.: Inference Network und Generative Network
- ▶ Probabilistische Neuronale Netze
- ▶ Und trotzdem differenzierbar (sog. Reparametrisierungstrick)
- ▶ Stochastic Gradient Descent Training
- ▶ liefert Posterior
- ▶ “Auto-Encoding Variational Bayes”

Tensorflow <-> Tensorflow Probability

- ▶ VAE in Tensorflow
- ▶ direkte Verwendung von Normalverteilungen
- ▶
- ▶ VAE in TF Probability
- ▶ Verwendung von Random Functions
- ▶ Random Functions enthalten die Netzwerke

Probabilistic Layers

- ▶ Layers for combining `tfp.distributions` and `'tf.keras`
- ▶ `DistributionLambda`
- ▶ `class VariationalGaussianProcess(DistributionLambda)`
- ▶ Implementierung