

## **On the Relationship between Generative and Discriminative Models**

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In this talk, the speaker will present his line of work in building and studying generative models with discriminative classifiers (energy-based generative adversarial learning), starting from the 2007 CVPR paper “Learning Generative Models via Discriminative Approaches” where energy-based generative models are learned via adversarial training. He will then discuss introspective neural networks (INN) where an integrated framework for unsupervised and supervised learning is developed. The speaker aims to build a single model that is simultaneously generative and discriminative. This is achieved by turning standard convolutional neural networks into a generic generator using stochastic gradient descent Langevin sampling through backpropagation. The learned generative model/discriminative classifier is capable of introspection: being able to self-evaluate the difference between its generated samples and the given training data. He will then present some recent preliminary results using synthesized images for assisting the training of discriminative classifiers.