Syllabus

Welcome to Course 1 of Generative Adversarial Networks (GANs): Build Basic GANs! We hope you are excited to get started.

To make sure you are best equipped to learn, here is a note on the prerequisites for this specialization:

We include a review of convolutional neural networks, deep learning, and the PyTorch framework which we hope you will find valuable, especially if you're coming from a TensorFlow or Keras background. This specialization is designed for someone without familiarity with GANs to come in, learn the basics in Course 1, and still succeed with learning the advanced topics presented in Course 2 and 3. The first of the 3 Courses (Course 1) is designed to explain the basic concept and foundation of GANs. If you are familiar with GANs or consider yourself an advanced learner, you may find it most enriching to start with Course 2 and supplement your learning with the optional notebooks. For anyone curious about a concept covered, you can also take a look at the optional readings for that week!

Ready? Let's get started!

Here's a peek at what you will be doing in Course 1: In Week 1, you will learn the fundamental components of GANs and build a basic GAN using PyTorch (your first GAN, perhaps!). By the end of Week 2, you will have used convolutional layers to build an advanced DCGAN that processes images. In Week 3, you will learn about mode collapse and apply W-Loss and gradient penalties to remedy it. Finally, you will learn how to effectively control your GANs and build conditional GANs in Week 4.

- Week 1: Intro to GANs
- Week 2: Deep Convolutional GANs
- Week 3: Wasserstein GANs with Gradient Penalty
- Week 4: Conditional GAN & Controllable Generation

Let's get learning!