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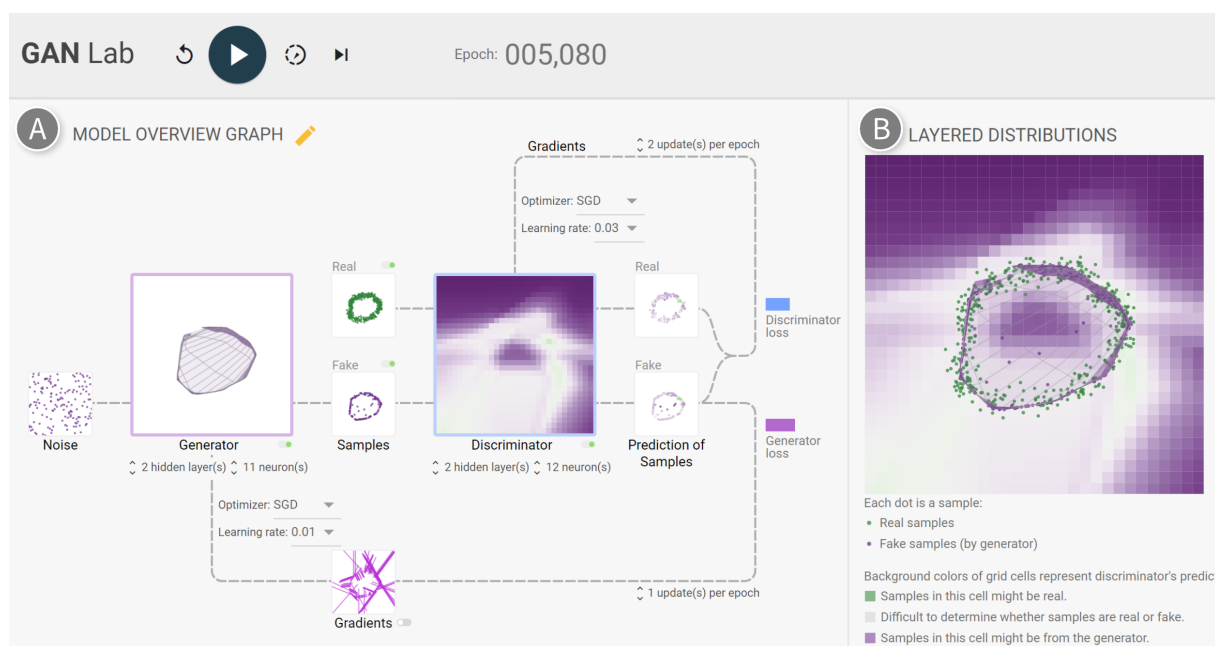
# GAN Lab: An Interactive, Visual Experimentation Tool for Generative Adversarial Networks

By Minsuk Kahng, Nikhil Thorat, Polo Chau, Fernanda Viégas, and Martin Wattenberg

## Overview

GAN Lab is a novel interactive visualization tool for anyone to learn and experiment with Generative Adversarial Networks (GANs), a popular class of complex deep learning models. With GAN Lab, you can interactively train GAN models for 2D data distributions and visualize their inner-workings, similar to TensorFlow Playground.

GAN Lab uses TensorFlow.js, an in-browser GPU-accelerated deep learning library. Everything, from model training to visualization, is implemented with JavaScript. Users only need a web browser like Chrome to run GAN Lab. Our implementation approach significantly broadens people's access to interactive tools for deep learning.



## Working Demo

Click the following link:

<https://poloclub.github.io/ganlab/>

It runs on most modern web browsers. We suggest you use Google Chrome.

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## Development

This section describes how you can develop GAN Lab.

### Install Dependencies

Run the following commands:

```
1 $ git clone https://github.com/poloclub/ganlab.git
2 $ cd ganlab
3 $ yarn prep
```

It's unlikely, but you may need to install some basic JavaScript-related dependencies (e.g., yarn).

### Running Your Demo

Run the following command:

```
1 $ ./scripts/watch-demo
2
3 >> Waiting for initial compile...
4 >> 3462522 bytes written to demo/bundle.js (2.17 seconds) at 00:00:00
5 >> Starting up http-server, serving ./
6 >> Available on:
7 >>   http://127.0.0.1:8080
8 >> Hit CTRL-C to stop the server
```

Then visit <http://localhost:8080/demo/>.

The `watch-demo` script monitors for changes of typescript code (e.g., `demo/ganlab.ts`) and compiles the code for you.

### Credit

GAN Lab was created by Minsuk Kahng, Nikhil Thorat, Polo Chau, Fernanda Viégas, and Martin Wattenberg, which was the result of a research collaboration between Georgia Tech and Google Brain/PAIR. We also thank Shan Carter and Daniel Smilkov, Google Big Picture team and Google People + AI Research (PAIR), and Georgia Tech Visualization Lab for their feedback.

For more information, check out our research paper:

Minsuk Kahng, Nikhil Thorat, Polo Chau, Fernanda Viégas, and Martin Wattenberg. “GAN Lab: Understanding Complex Deep Generative Models using Interactive Visual Experimentation.” *IEEE Transactions on Visualization and Computer Graphics*, 25(1) (VAST 2018), Jan. 2019.