

使用基於生成對抗網絡 (GAN) 的 DCGAN 技術和超分辨率 (SR) 技術 實現服裝秀網站

Implementing a fashion show website using DCGAN (Deep Convolutional Generative Adversarial Network) and SR (Super Resolution) techniques for generating fashion designs

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開發工具：Python (Pytorch)、Node.js (Express.js & React.js)

測試環境：Windows11 & Chromium 112.0.5615.138 (正式版 64bit)

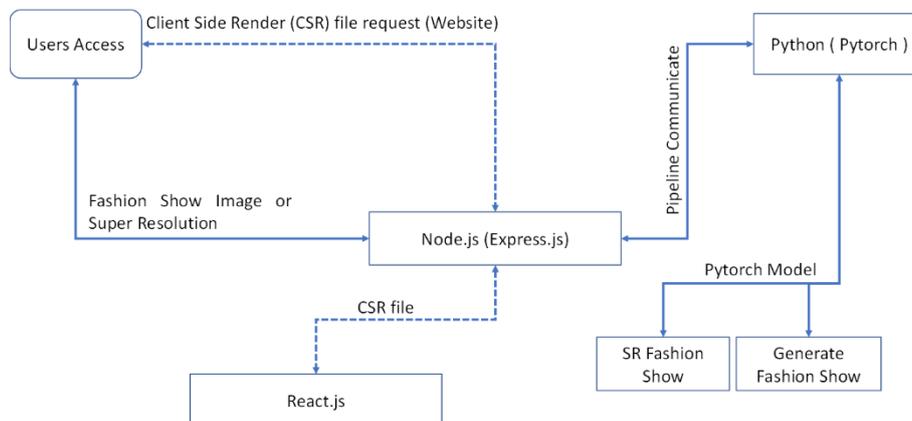
一、簡介：

這個專題旨在使用生成對抗網絡 (GAN) 的深度卷積生成對抗網絡 (DCGAN) 技術和超分辨率 (SR) 技術，開發一個服裝秀網站 (RWD 響應式網站)。這個網站將能夠生成新的時尚設計，並以高解析度呈現。

DCGAN 是一種特殊的生成對抗網絡，結合了卷積神經網絡 (CNN) 和生成對抗網絡 (GAN) 的架構。透過使用卷積層和反卷積層，DCGAN 能夠從隨機噪聲中生成逼真的圖像。在服裝秀網站中，DCGAN 可以被訓練來生成時尚設計，例如不同類型的服裝、配飾和鞋子等。

另外，超分辨率 (SR) 技術可以將低解析度圖像提升為高解析度圖像。在服裝秀網站中，我們可以使用 SR 技術來增強生成的時尚設計的細節和清晰度。這樣，使用者可以更好地欣賞和評估時尚設計，並更好地了解服裝的細節和質感。

架構圖：



二、測試結果：

Fashion Show

About
This project aims to create a fashion show website using the techniques of Deep Convolutional Generative Adversarial Networks (DCGAN) and Super Resolution (SR) for generating fashion designs. DCGAN is a specialized type of Generative Adversarial Network (GAN) that combines Convolutional Neural Networks (CNN) and GAN architectures. By utilizing convolutional and deconvolutional layers, DCGAN is capable of generating realistic images from random noise. In the context of the fashion show website, DCGAN can be trained to generate fashion designs such as clothing, accessories, and shoes of various styles. Additionally, Super Resolution (SR) techniques can enhance low-resolution images to high-resolution ones. In the fashion show website, SR technology can be employed to enhance the details and clarity of the generated fashion designs. This allows users to better appreciate and evaluate the fashion designs, gaining a deeper understanding of the garment's details and textures.

Tech Stack
DCGAN - Generate Fashion Show & Super resolution in Pytorch
Python - Pytorch Environment (Communicate with Node.js)
Node.js - Express.js (Server) & fork process for python (Model communicate)
React.js - Frontend (RWD website)
MUI5 - Styled component (CSS Design)

Dataset
Deep Fashion (44096 images)

Have a Show

Fashion Show

Fetch Image Super Resolution Download Delete Delete Others

Super Resolution

Download SR Generator_epoch_120(Recommended).pth

Before After