

Building a Simple Image Generator using PyTorch

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Project Overview

This project focuses on building a basic Generative Adversarial Network (GAN) using PyTorch to generate simple images. The project will cover defining models, training procedures, and evaluation metrics within a web application framework.

Requirements

- Detailed project specifications
- Comprehensive documentation
- Unit and integration tests
- CI/CD pipeline
- Performance benchmarks
- Develop a Generator model that produces images.
- Develop a Discriminator model that distinguishes between real and generated images.

- Implement a training loop for the GAN.

Deliverables

- Source code with tests
- API documentation
- User documentation
- Developer documentation
- Test results and coverage report
- Performance test results
- Deployment instructions
- Functional PyTorch GAN code.
- A simple web application (e.g., using Flask) to display generated images.
- A report documenting the project, including code, results, and challenges.

Timeline

Week	Description
1	Setup environment, design models, and implement the basic architecture of the Generator and Discriminator.
2	Implement the training loop, integrate basic loss functions, and start experimenting with training parameters.
3	Develop the web application interface to display generated images. Conduct initial testing and refine the model.
4	Finalize the web application, conduct thorough testing, write the final report, and deploy the application.

Technical Requirements

Code_Quality

- test_coverage: >= 80%
- documentation_coverage: >= 90%
- code_style: PEP 8 compliant

Performance

- response_time: < 200ms

- throughput: > 1000 requests/second