

Free-hand Sketch Recognition

TalentSprint

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Description

- ▶ Provides web interface for drawing
- ▶ Captures the image
- ▶ Recognizes the object using CNN

Challenges

- ▶ Large intraclass deformations
- ▶ Less detailed
- ▶ Sketch orientation

Tech Stack

- ▶ Framework
 - ▶ Django
- ▶ Environment
 - ▶ Google colab
- ▶ Frontend
 - ▶ HTML, CSS, JS
- ▶ Backend
 - ▶ Python
- ▶ Modules
 - ▶ OpenCV, Keras(Imagenet, LeNet, ResNet)

Progress(21-06-2019)

- ▶ TU Berlin dataset (20000 samples - 250 categories)
- ▶ Research papers
- ▶ Django overview

- ▶ Image augmentation
 - ▶ Mirroring
 - ▶ Erosion
 - ▶ Rotation
 - ▶ Shifting
 - ▶ Scaling

Implementation(Mirroring)

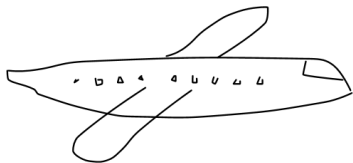


Figure: Original image

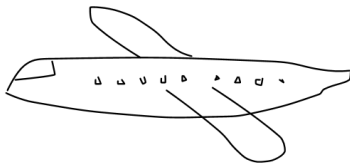


Figure: Mirrored image

Implementation(Erosion)

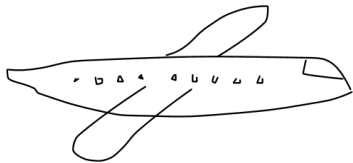


Figure: Original image



Figure: Image after erosion

Implementation(Rotation)



sample_0



sample_15



sample_-15



sample_30



sample_-30



sample_90

Implementation(Shifting)



sample_shift
50-150



sample_shift
-50-150

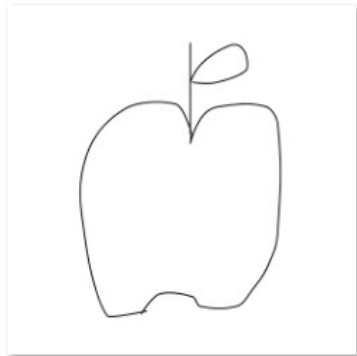


sample_shift
50150

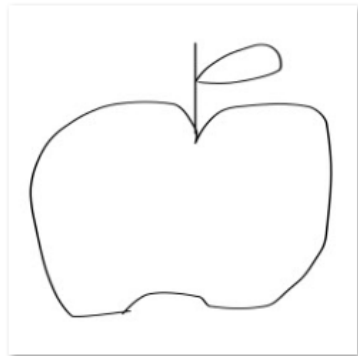


sample_shift
-50150

Implementation(Scaling)

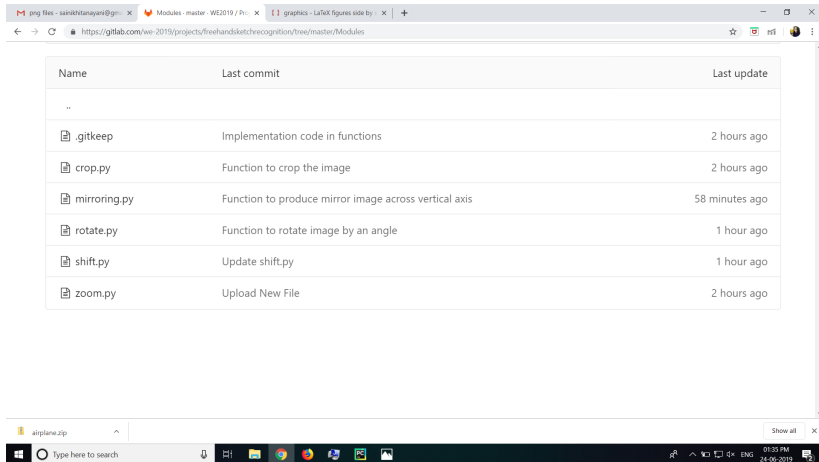


sample



sample_zoomed

Implementation(git commits)



The screenshot shows a web browser window displaying the GitLab interface for a project. The URL is <https://gitlab.com/we-2019/projects/freehandsketchrecognition/tree/master/Modules>. The main content is a table listing files in the 'Modules' directory, showing the last commit message and the time since the last update.







Name	Last commit	Last update
..		
 .gitkeep	Implementation code in functions	2 hours ago
 crop.py	Function to crop the image	2 hours ago
 mirroring.py	Function to produce mirror image across vertical axis	58 minutes ago
 rotate.py	Function to rotate image by an angle	1 hour ago
 shift.py	Update shift.py	1 hour ago
 zoom.py	Upload New File	2 hours ago

Figure: Commits

Implementation(git issues)

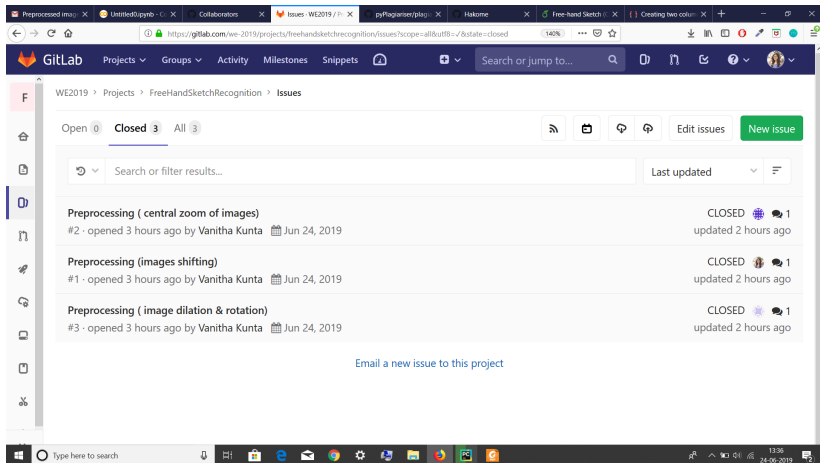


Figure: Issues

Project Plan

- ▶ Image Processing (3 days)
- ▶ Neural Networks (5 days)
- ▶ Front end development (2 days)
- ▶ Integration and improve accuracy (week3)

Future Scope

- ▶ Display similar images
- ▶ Recognize object at every step

Discussions