IMPROVING THE DESIGN PIPELINE ON HAL

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MOTIVATION

➤ Mockup tools missing a system that provide a step-by-step guidance

➤ Adobe Xd, balsamiq

User Interface  Possible Component
Given a partial UI in the semantic annotation, predict the next possible component.
IMAGE TO IMAGE TRANSLATION TASK

➤ Use GANs to learn the hidden relationship between two images

Step 1

Step 2
TRAINING THE MODEL

Train dataset

2958 partial UIs

Test dataset

724 partial UIs

Train about 500~1000 epoch
Very harsh metric: Intersection over Union

Test IOU: ~25%
TRAINING HAL

- Many Tesla V100 GPUs!
- Decrease our waiting time from 9 hours to 3 hours
- Train multiple models in parallel
CPU and GPU usage graph?
FEEDBACK ON HAL - 2

➢ Delayed update to the *.out file

Namespace(b1=0.5, b2=0.999, batch_size=16, channels=3, checkpoint_interval=10, dataset_name = 'data_welcome', epoch=0, img_height=128, img_width=128, lambda_dsgan=8, lambda_kl=0.01, lambda_latent=0.5, lambda_pixel=10, latent_dim=8, lr=0.0002, n_cpu=24, n_epochs=500, sample_interval=400)
Cuda computation is enabled!
[Epoch 0/500] [Batch 0/185] [D VAE_loss: 2.966505, LR_loss: 2.995085] [G loss: 15.910905, pixel: 0.977048, kl: 17.832874, dsgan: -0.000028, latent: 0.367467] ETA: 18 days, 4:02:02.510576

➢ My solution: add a line in the code to log progress into a file.

```
1 [Epoch: 0/500], [Batch: 0/185], [D VAE_loss: 2.9583516120910645], [DLR_loss: 3.013044834136963],
[GE: 16.048376083374023], [VAE GAN: 2.9699387550354004], [LR GAN: 3.00302338601587], [pixel: 0.986978742340088], [kl: 21.463045120239258], [DS loss: -2.418924584143736e-05], [latent: 0.42789721488952637]
2 [Epoch: 0/500], [Batch: 1/185], [D VAE_loss: 2.817654371261567], [DLR_loss: 2.862768411636525],
[GE: 15.857686996459981], [VAE GAN: 2.934360980987549], [LR GAN: 2.9598288536071777], [pixel: 0.98952437973022461], [kl: 11.129621505737305], [DS loss: -2.971611320390366e-05], [latent: 0.4283087849617644]
3 [Epoch: 0/500], [Batch: 2/185], [D VAE_loss: 2.6563782691955666], [DLR_loss: 2.69931030273475],
[GE: 15.769103650231934], [VAE GAN: 2.8956384658813477], [LR GAN: 2.9134318882862764], [pixel: 0.98906924366950989], [kl: 5.338650783408716], [DS loss: -3.4765716516757384e-05], [latent: 0.4037767632392883]
4 [Epoch: 0/500], [Batch: 3/185], [D VAE_loss: 2.4142956733703613], [DLR_loss: 2.463041067123413],
[GE: 15.60437229003906], [VAE GAN: 2.849091053009033], [LR GAN: 2.8552796846677225], [pixel: 0.9871521592140198], [kl: 2.8730030059814453], [DS loss: -3.4464028431102633e-05], [latent: 0.35978734493255615]
```
FEEDBACK ON HAL – 3

➤ No Visual Connection to HAL

Image@http://techgenix.com/remote-desktop-connection-manager/
Network slow on upload speed

scp [HAL] to [local]

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<tr>
<th>File</th>
<th>% Complete</th>
<th>Size</th>
<th>Speed</th>
<th>Time</th>
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<tr>
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<td>724.1KB/s</td>
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</tbody>
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THANK YOU FOR YOUR TIME!