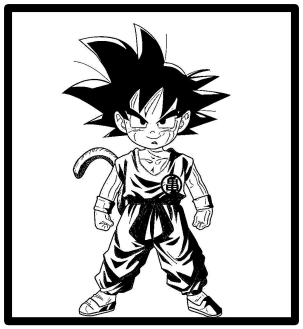
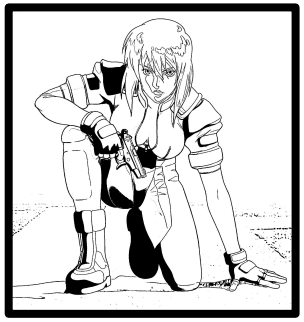
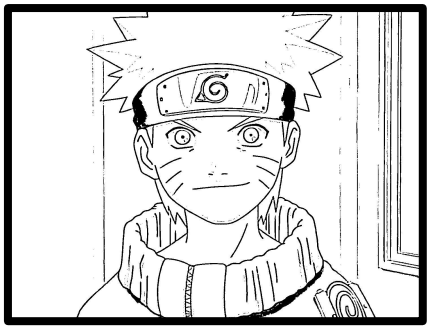
PSIML 2017

COLORFUL MANGA COLORIZATION

NIKOLA JOVICIC DUSAN JOSIPOVIC

THE PROBLEM WE'RE TRYING TO SOLVE

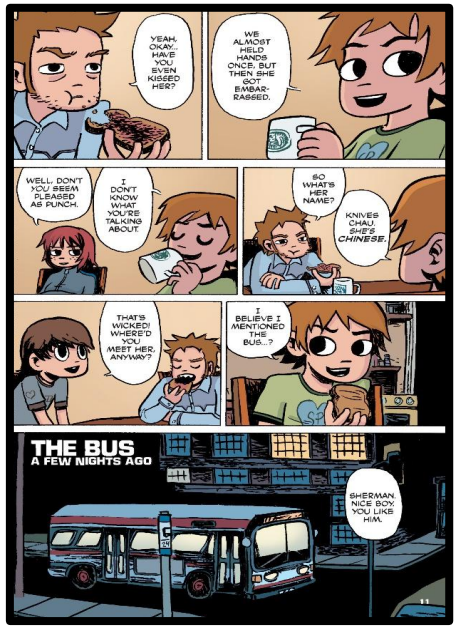





DATASET #1

ScottPilgrim comic

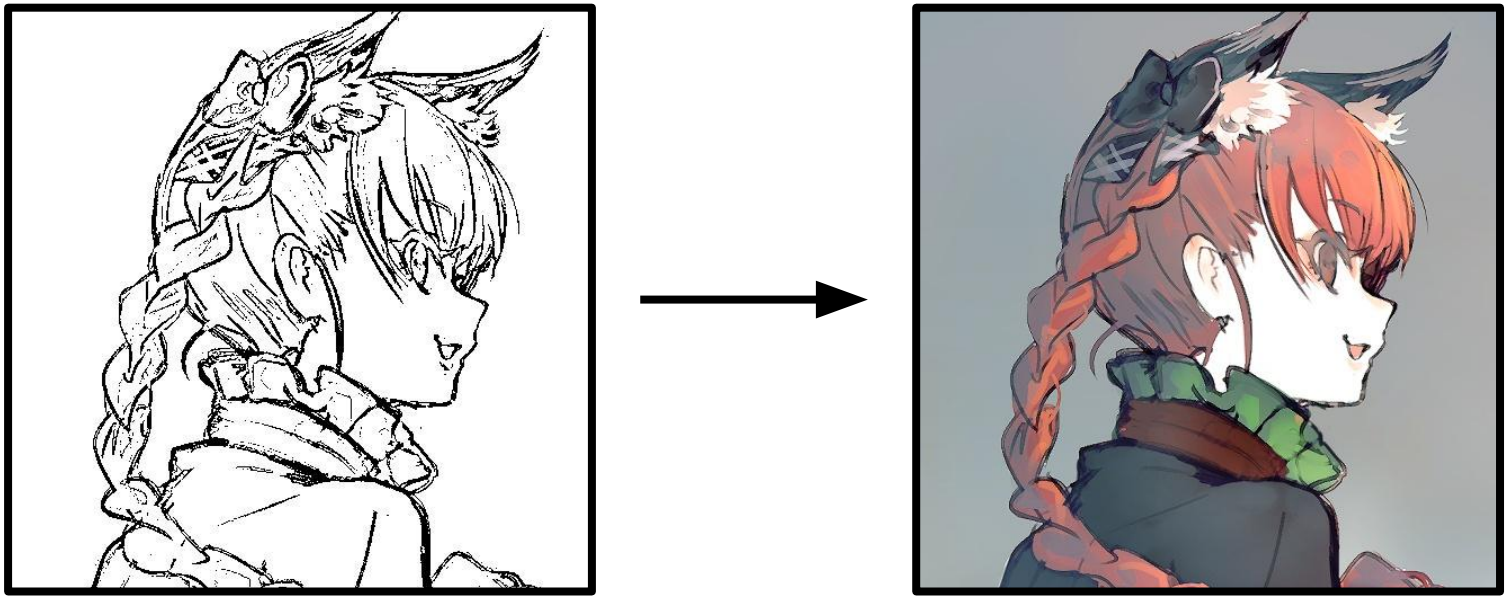
546 Colored images – 950x640



DATASET #2

Safebooru.org

~42k Colored images – 512x512



IDEA #1 - WARMUP

- Bunch of simple architecturs
- Conv2D, Batchnorm, Dropout...

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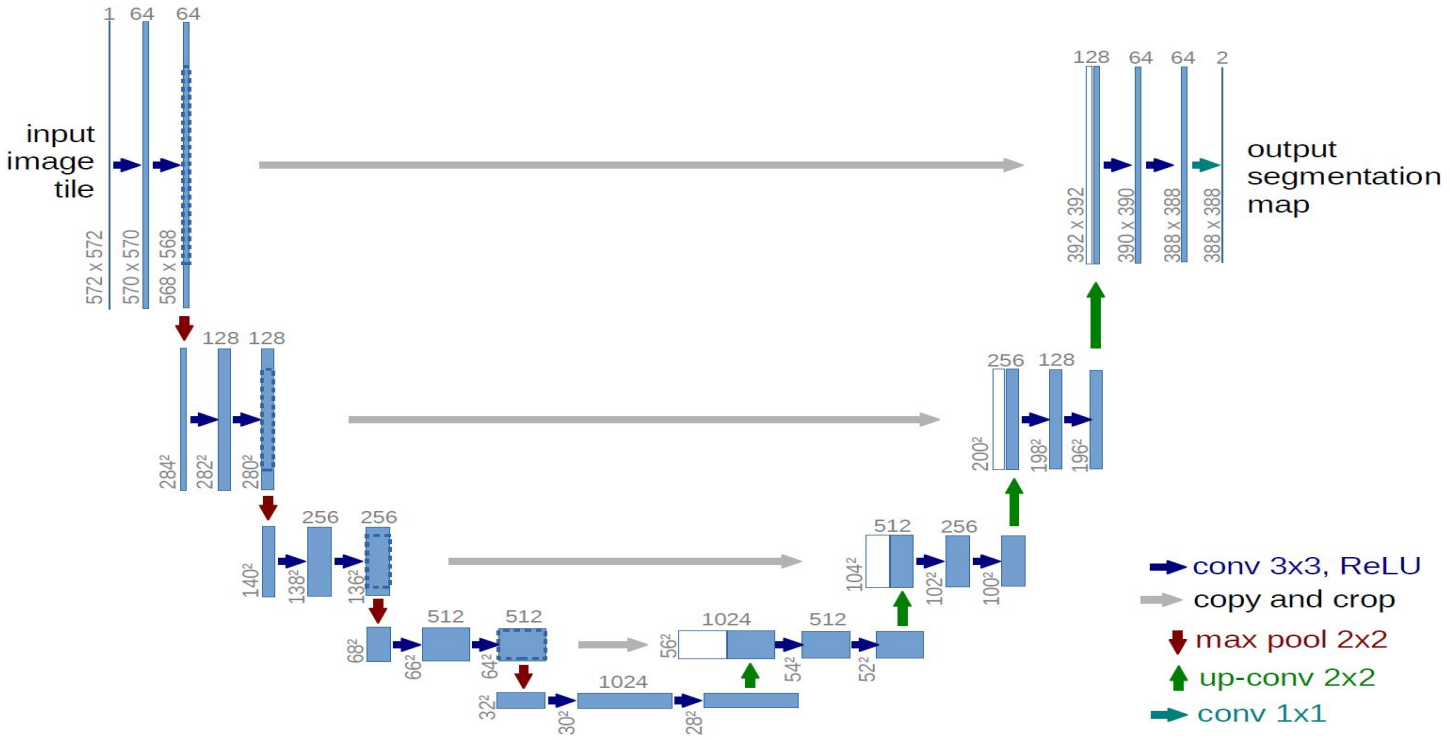
IDEA #2 U-NET ARCHITECTURE

- Autoencoder with skip connections



25
EPOCHS

50 EPOCHS


YEAH, OKAY. HAVE YOU EVER HEARD HER?
WE ALMOST HELD HANDS ONCE, BUT THEN SHE GOT BUMPED PASSED.
WELL, DON'T YOU SEEM PLEASED AS PUNCH.
I DON'T KNOW WHAT YOU'RE TALKING ABOUT
SO WHAT'S HER NAME?
KHAVES CHAU SUCH CHINESE.
THAT'S WICKED! WHERE'D YOU MEET HER, ANYWAY?
I BELIEVE I MENTIONED THE BUS...?
THE BUS
A FEW NIGHTS AGO
SHERMAN

180
EPOCHS

10HRS
TRAINING

IDEA #2 - U-NET ARCHITECTURE

BUT DID IT WORK?

IDEA #2 - U-NET ARCHITECTURE

BUT DID IT WORK?

NO

IDEA #3 U-NET ARCHITECTURE ON #2 DATASET

ORIGINAL



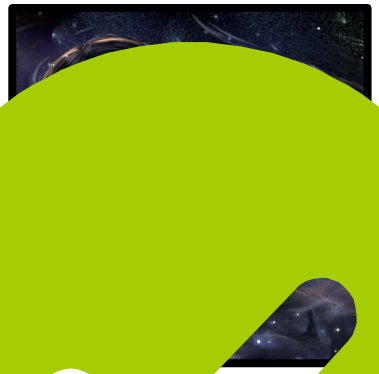
GENERATED



IDEA #3 U-NET ARCHITECTURE ON #2 DATASET

IDEA #3 U-NET ARCHITECTURE ON #2 DATASET

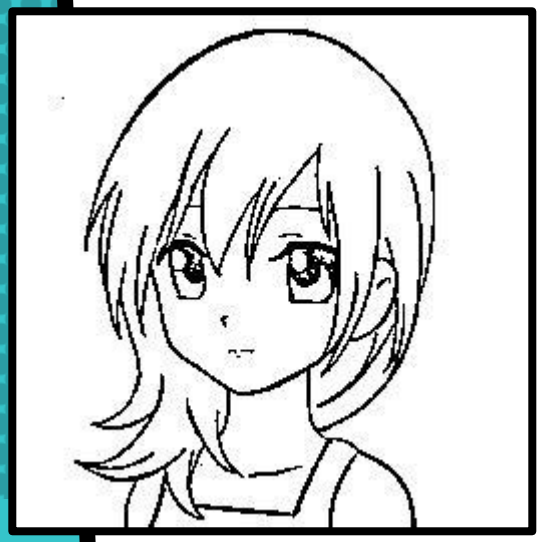
ORIGINAL



GENERATED

IDEA #4 U-NET ARCHITECTURE WITH HINT

INPUT



HINT

RESULT

IDEA #4 U-NET ARCHITECTURE WITH HINT

ORIGINAL



GENERATED



IDEA #4 U-NET ARCHITECTURE WITH HINT

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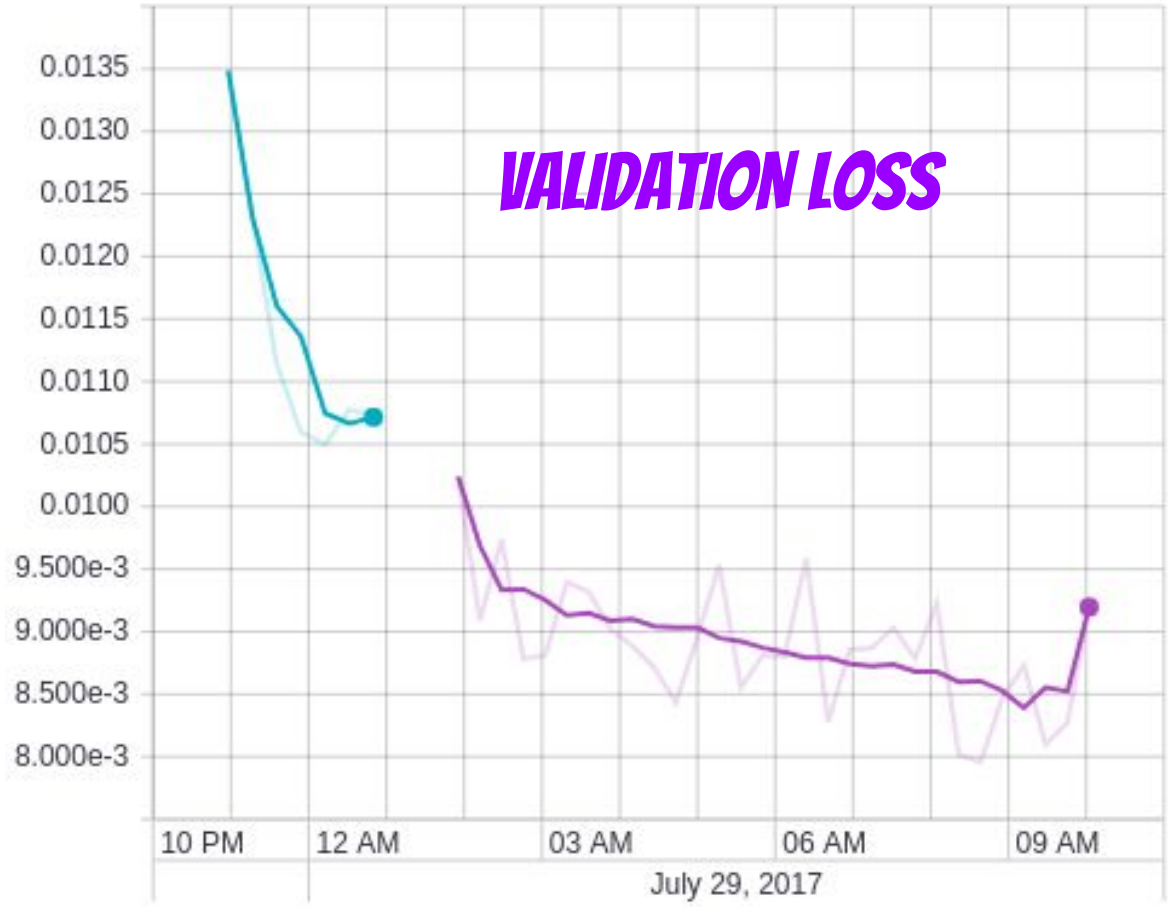


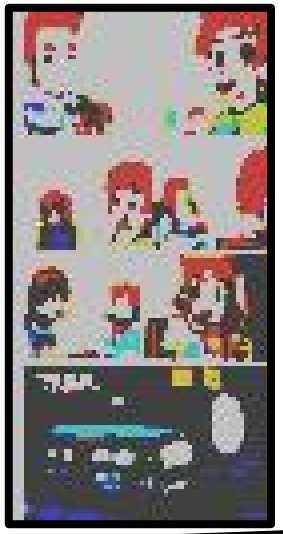
IDEA #4 U-NET ARCHITECTURE WITH HINT

ORIGINAL

GENERATED

HALF-FINISHED IDEAS

- × Loss function that penalizes color histogram distance
- × Beheaded U-NET
- × Segmentated output (gave bad results?)



START WITH A
SMALL MODEL FIRST

THANKS!

Any questions?