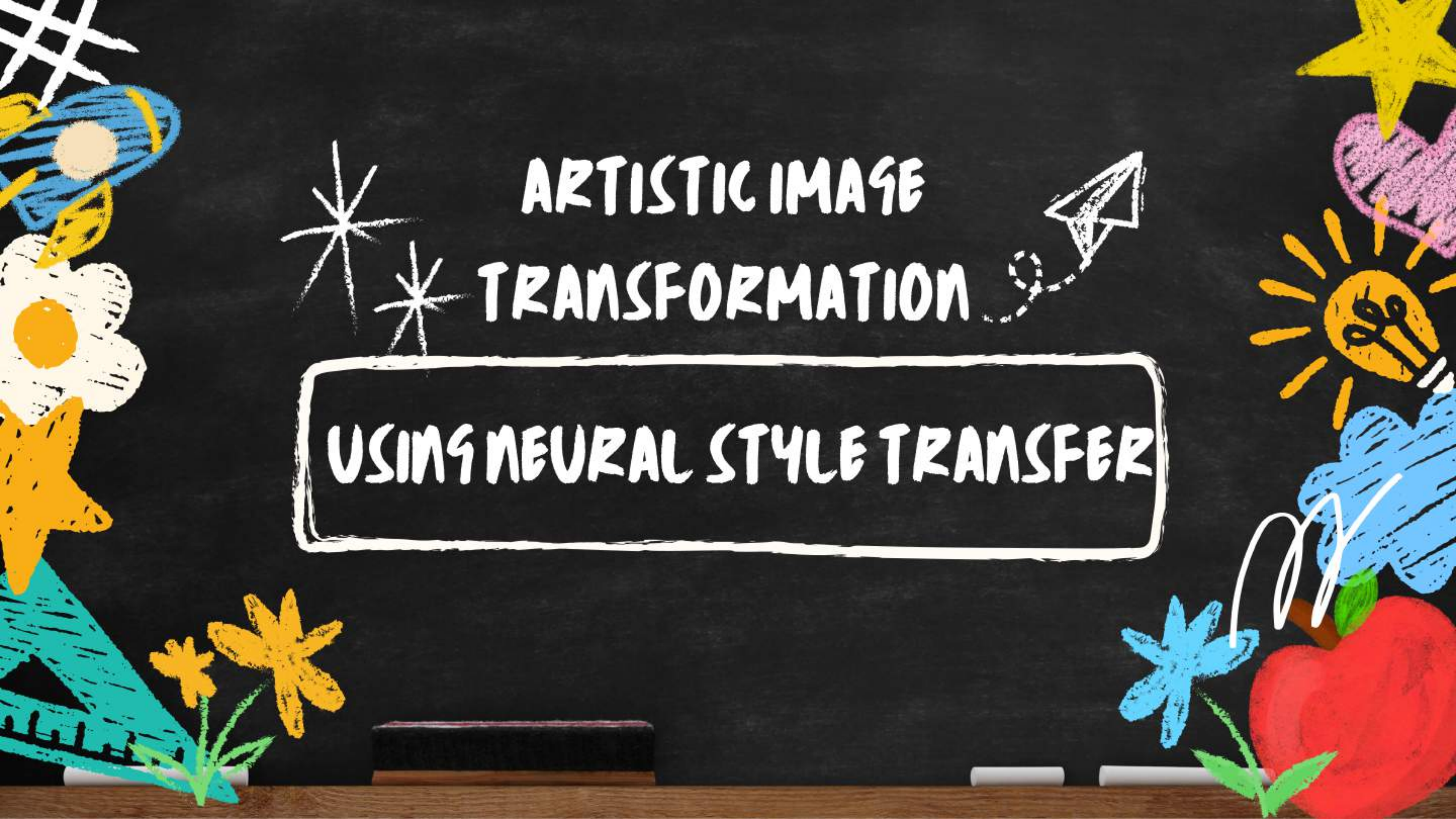


ARTISTIC IMAGE TRANSFORMATION

USING NEURAL STYLE TRANSFER



ŠTA JE NST?

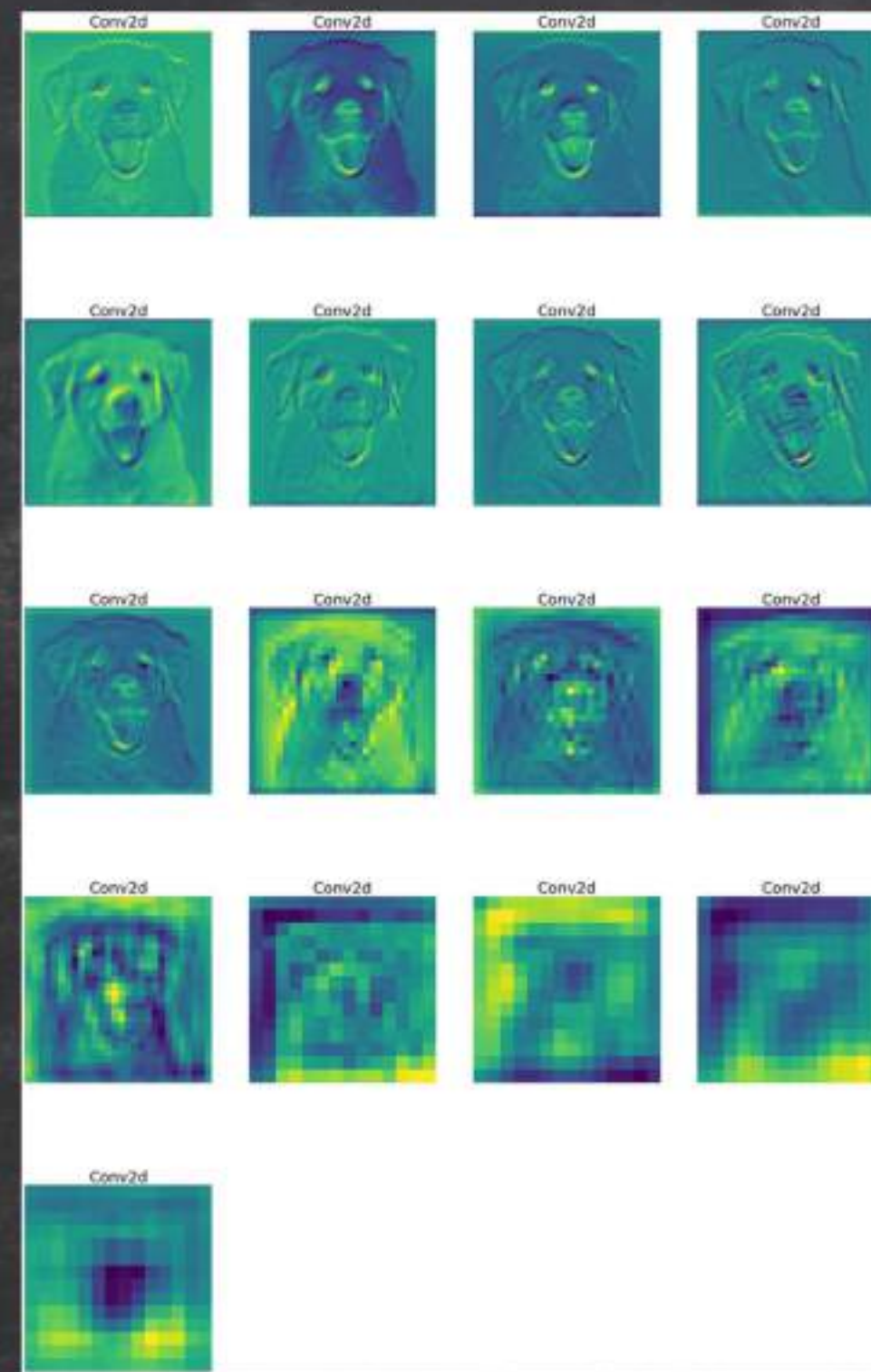
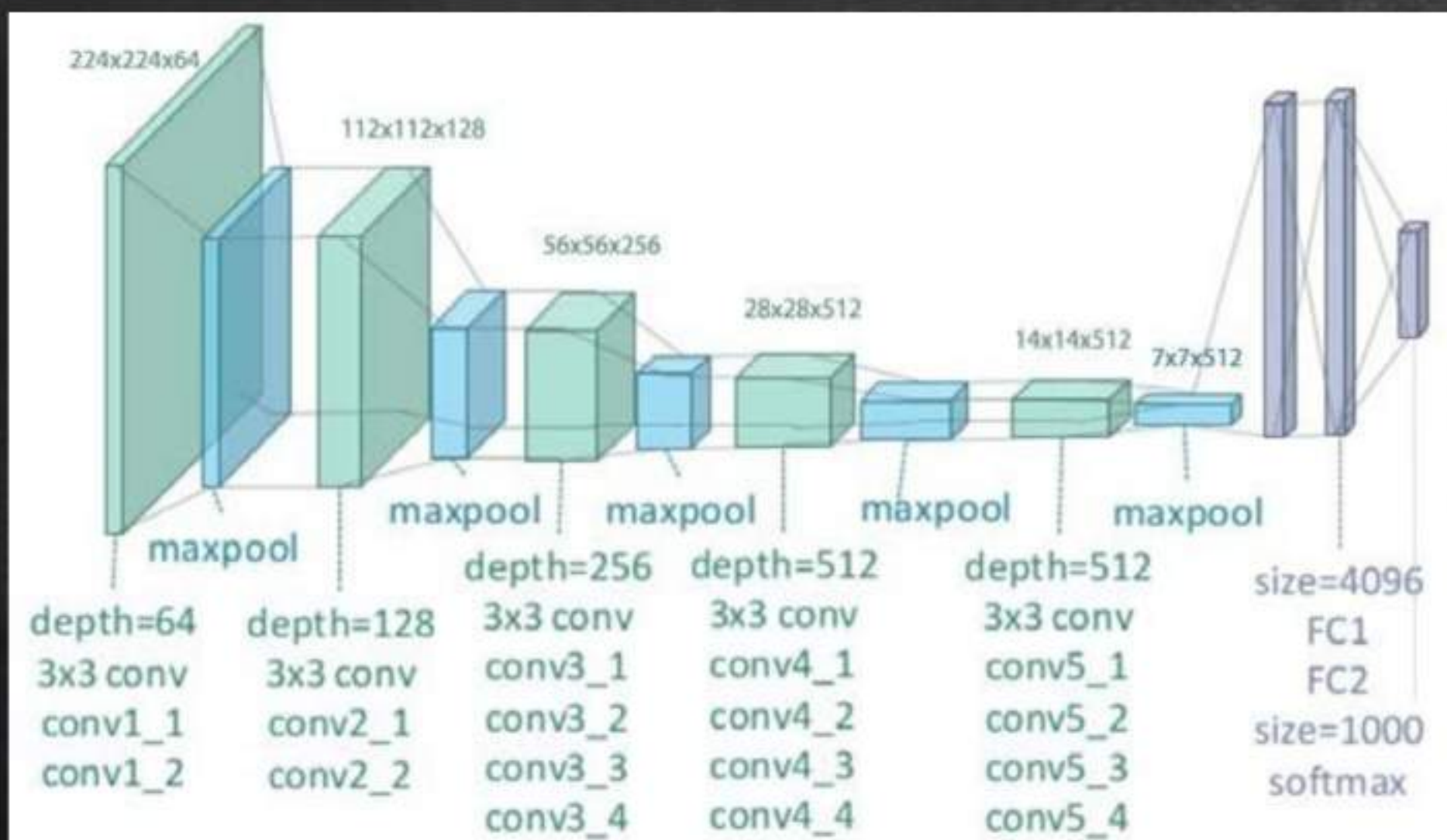
Kombinacija sadržajne i stilske slike

Rezultat: sadržaj + umetnički stil



ULOGA MREŽE-VGG19 KAO FEATURE EXTRACTOR

NIŽI SLOJEVI → ivice, teksture
VIŠI SLOJEVI → struktura i raspored



FUNKCIJA GUBITKA

CONTENT LOSS (MSE)

Content loss: meri koliko je raspored i struktura objekata u generisanoj slici sličan sadržajnoj slici.

STYLE LOSS (GRAM MATRICE)

Style loss: meri koliko su teksture, šare i boje u generisanoj slici slične onima iz stilske slike.

UKUPNI GUBITAK

$$L = \alpha L_c + \beta L_s$$

$$\alpha = 10^4$$

$$\beta = 10^{-2}$$

GRAM MATRICA:

Gram matrica → korelacije između kanala
Hvata teksture nezavisno od pozicije

KLASIČNA OPTIMIZACIJA (ADAM)

Pikseli = parametri

Brzo i precizno rešenje

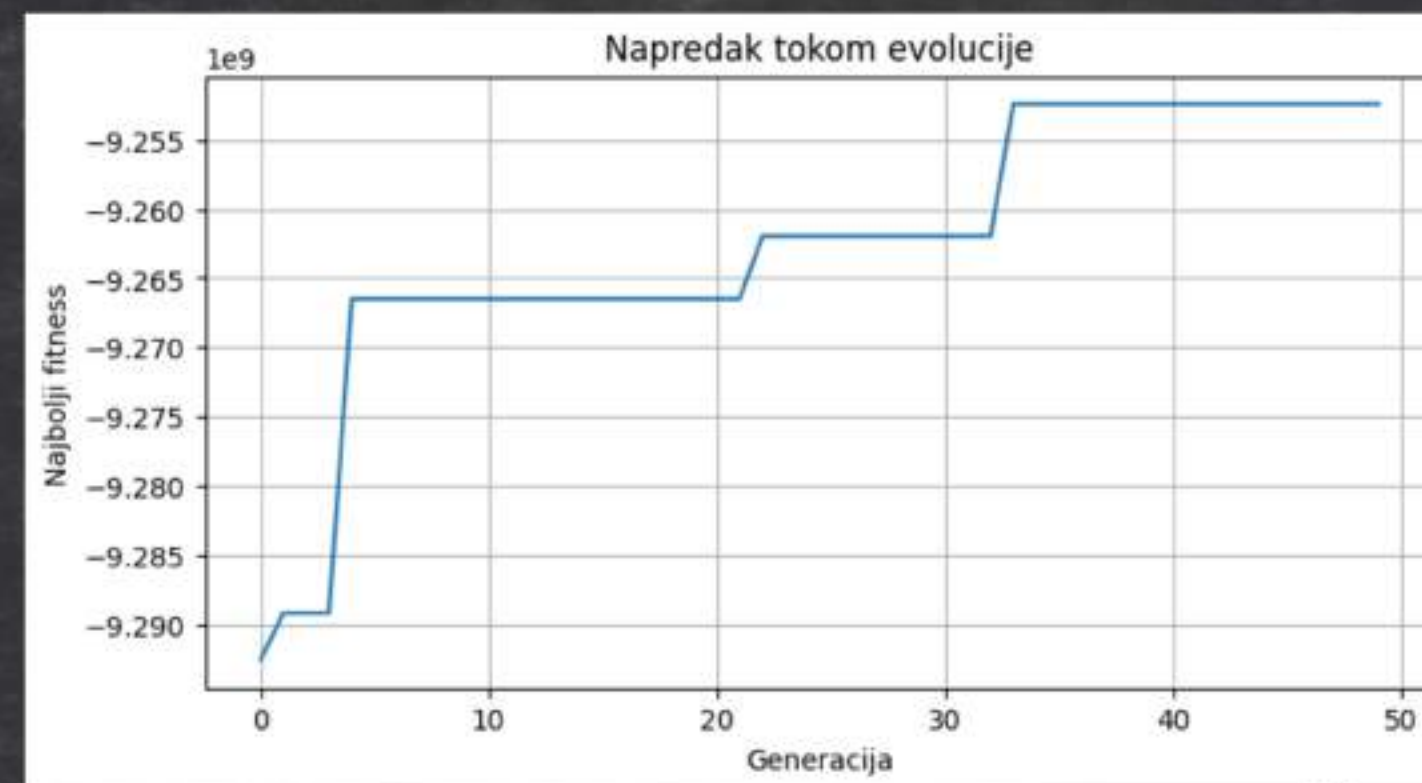
Iterativna optimizacija



GENETSKI ALGORITAM (GA)

Populacija slika-kandidata

selekcija, crossover, mutacija



HIBRIDNI PRISTUP (GA + ADAM)



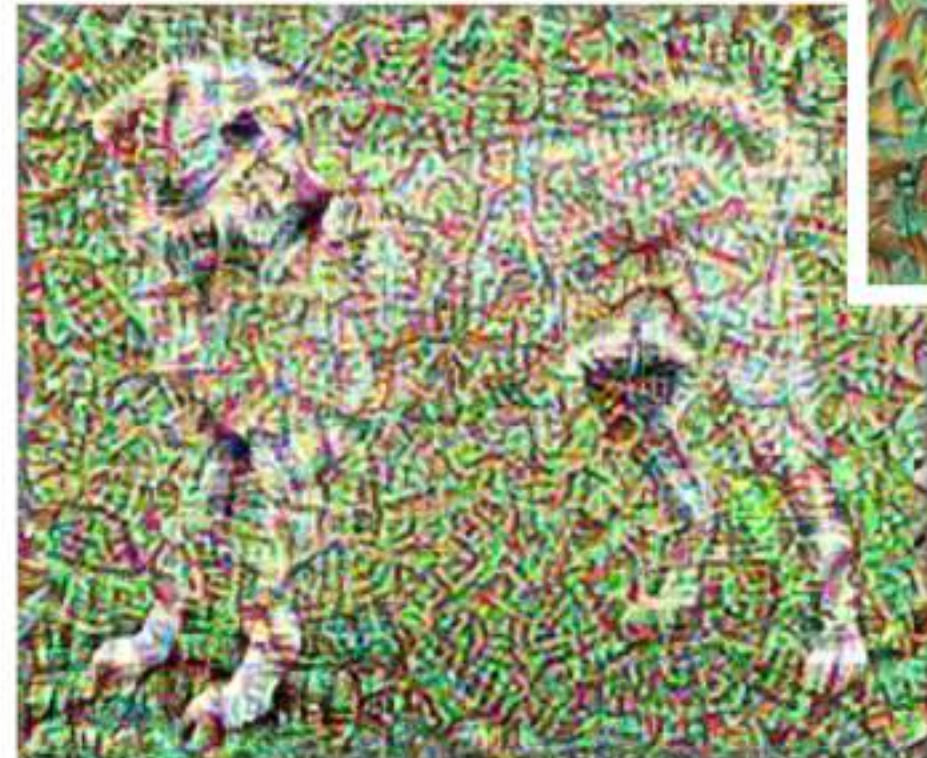
Gen 50 - Fitness: -151673472.00

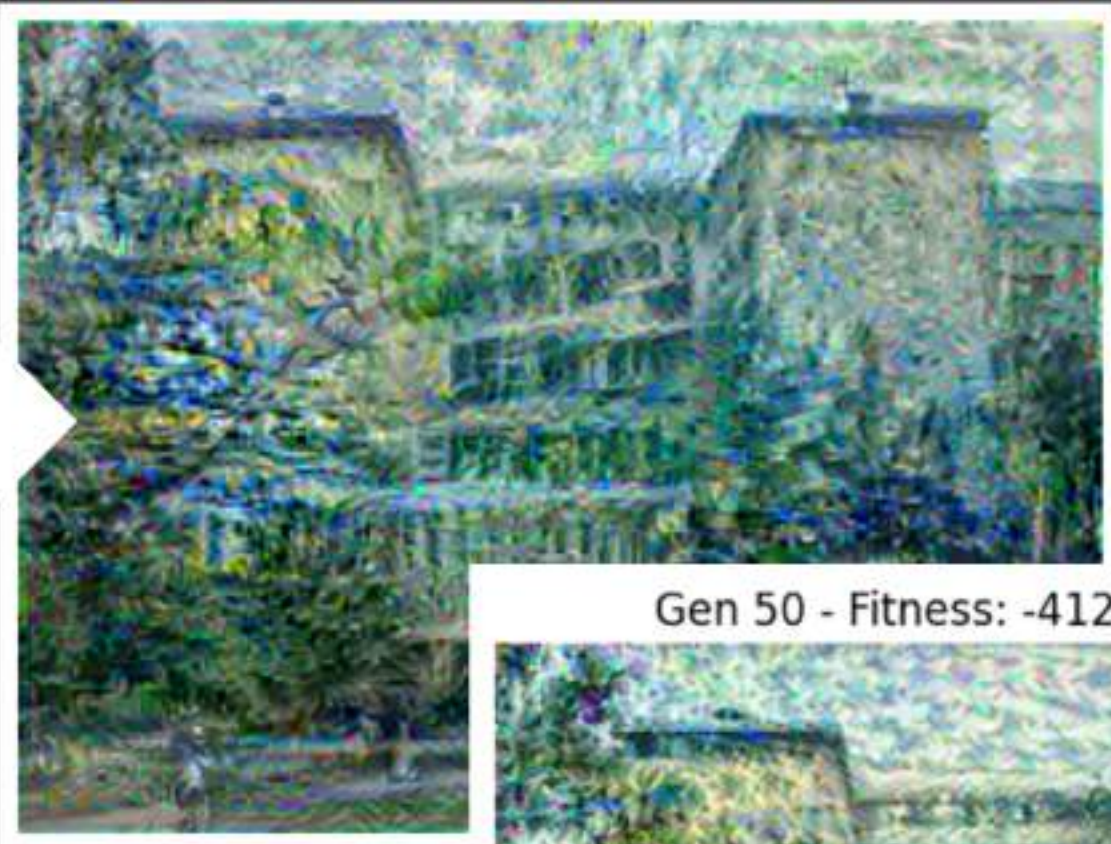
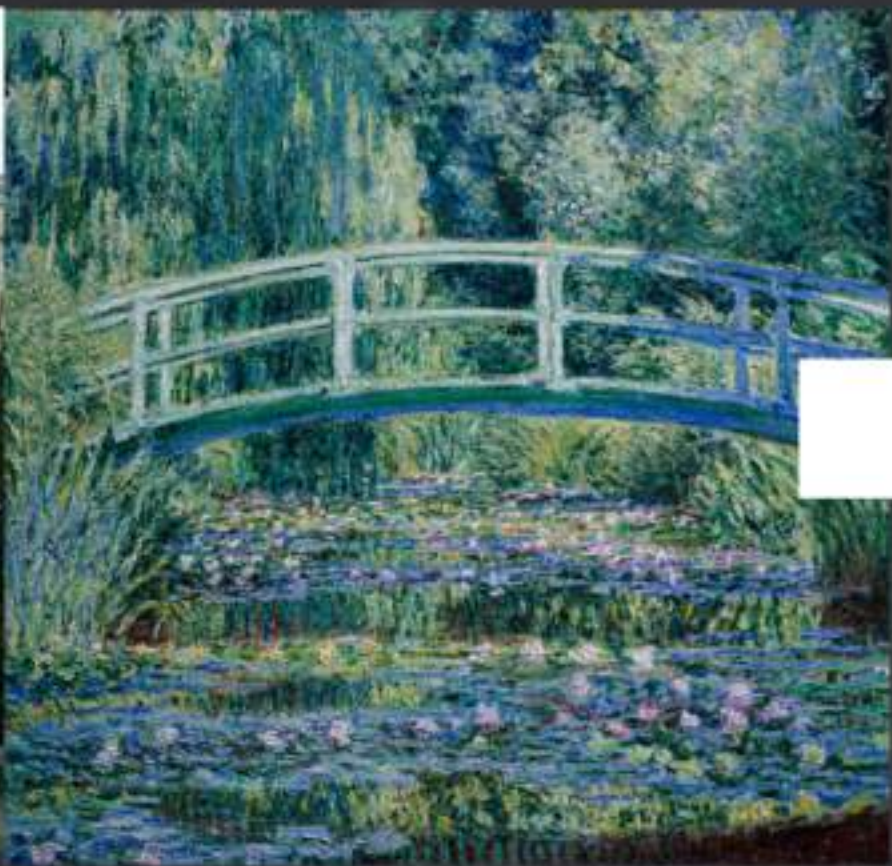


Gen 50 - Fitness: -196512560.00

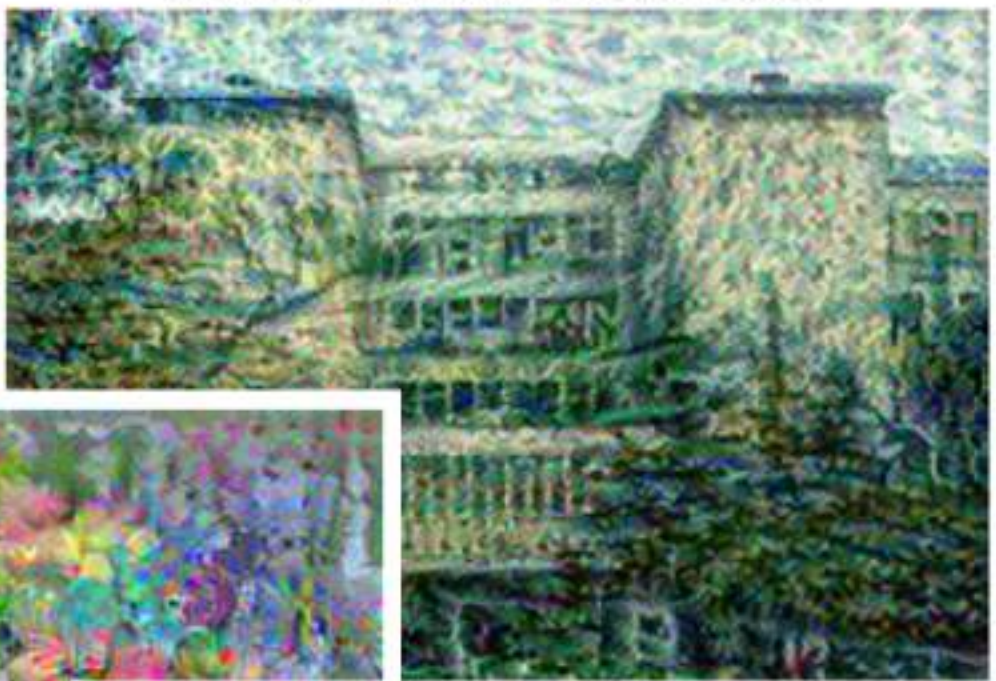


Gen 50 - Fitness: -6646214656.00

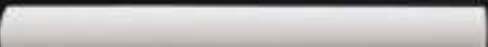




Gen 50 - Fitness: -41269128.00



Gen 50 - Fitness: -52111576.00





HVALA NA PÁŽNJI!

JOVANA UROŠEVIĆ