Image Denoising

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a. RMSE original = 0.29311
b. Quadratic prior (a*,b*) = (0.396, _)
c. RRMSE quad(a*,b*) = 0.2901
d. RRMSE quad (1.2a*,b*) = 29028
e. RRMSE quad (0.8a*,b*) = 29028
f. Huber prior (a*,b*) = 1.0, 2.5e-5
g. RRMSE huber (a*,b*) = 0.25849
h. RRMSE huber(1.2a*,b*) = NA
i. RRMSE huber (0.8a*,b*) = 0.29289
j. RRMSE huber (a*,1.2b*) = 0.25847
k. RRMSE huber (a*,0.8b*) = 0.25874

Part-1

a. Discontinuity adaptive function prior (a*,b*) = 1.0, 2.5e-5
b. RRMSE daf (a*,b*) = 0.2585
c. RRMSE daf (1.2a*,b*)= NA
d. RRMSE daf (0.8a*,b*) = 0.2928
e. RRMSE daf (a*,1.2b*) = 0.2585
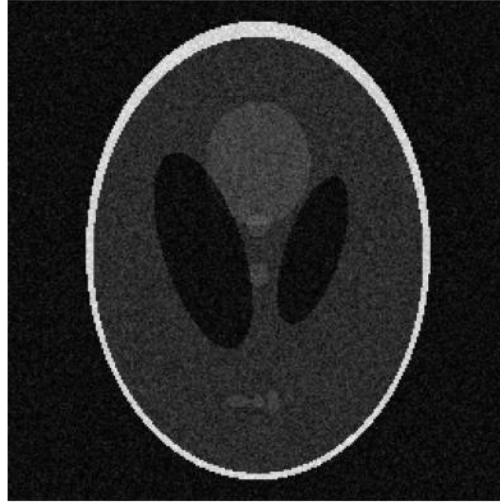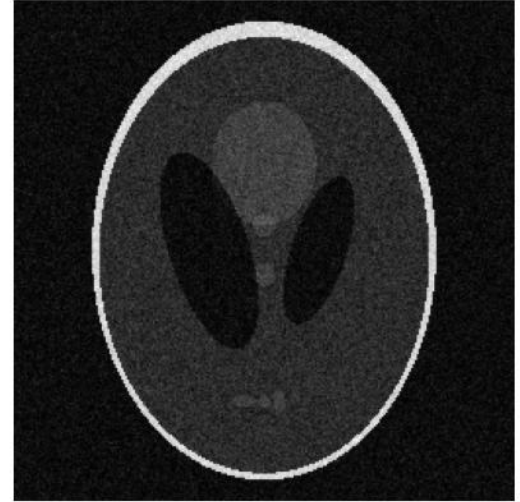f. RRMSE daf (a*,0.8b*) = 0.2587

Part-1

Quadratic

Clean Image — Noisy Image — Denoised Image
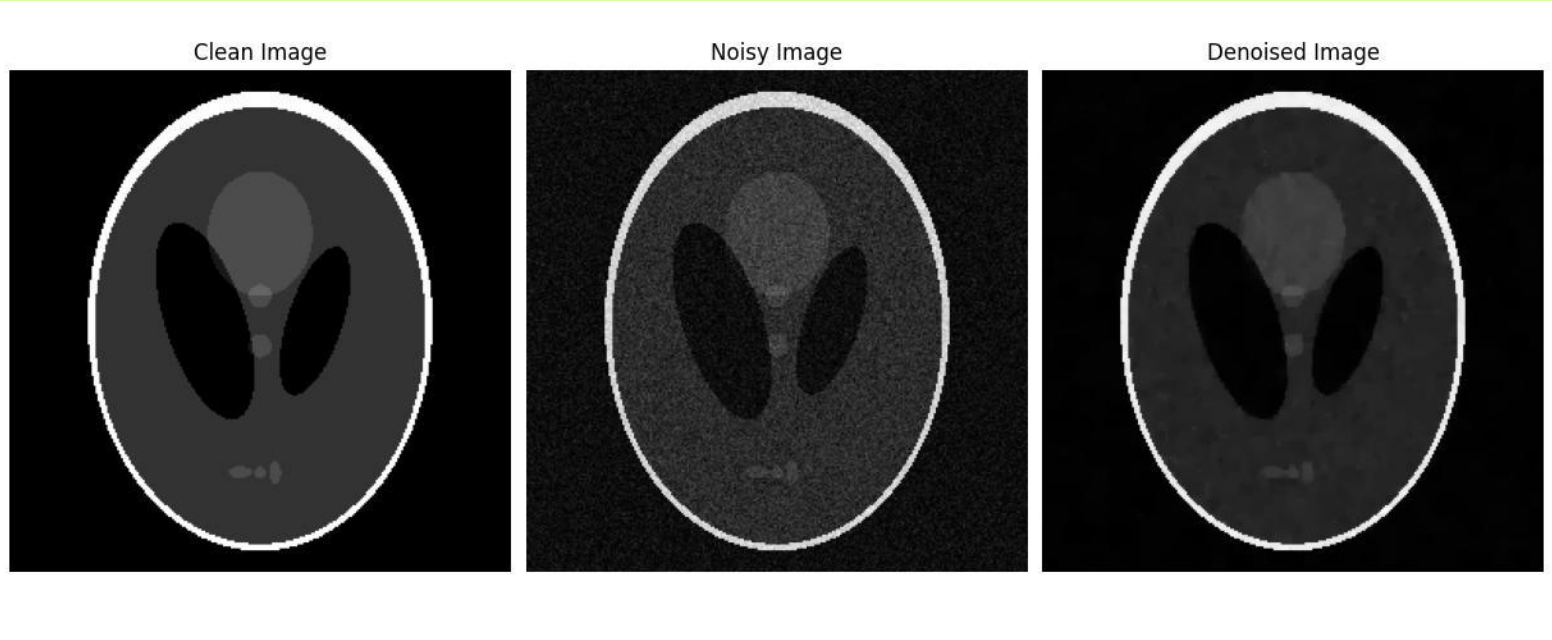
Part-1

Huber

Clean Image   Noisy Image   Denoised Image

Part-1

Daf

Clean Image · Noisy Image · Denoised Image

Part-1

Quadratic

Part-1

Objective Function Evolution (quadratic prior)

Huber

Part-1

Objective Function Evolution (huber prior)

Daf

Part-1

Objective Function Evolution (discontinuity_adaptive prior)
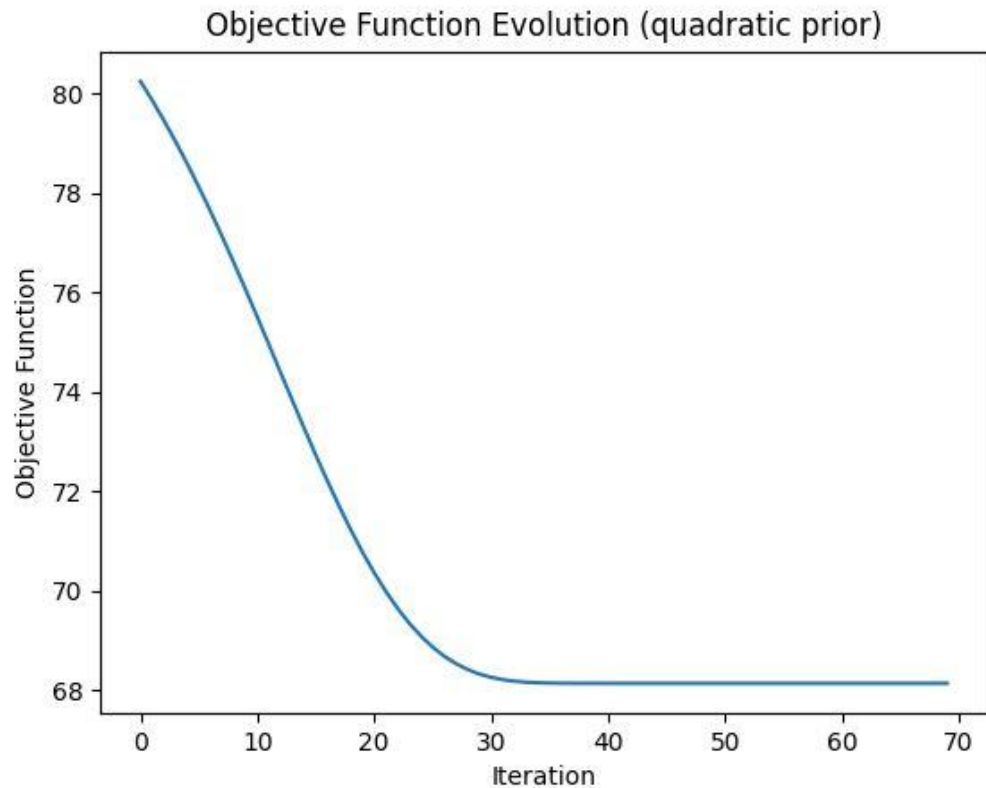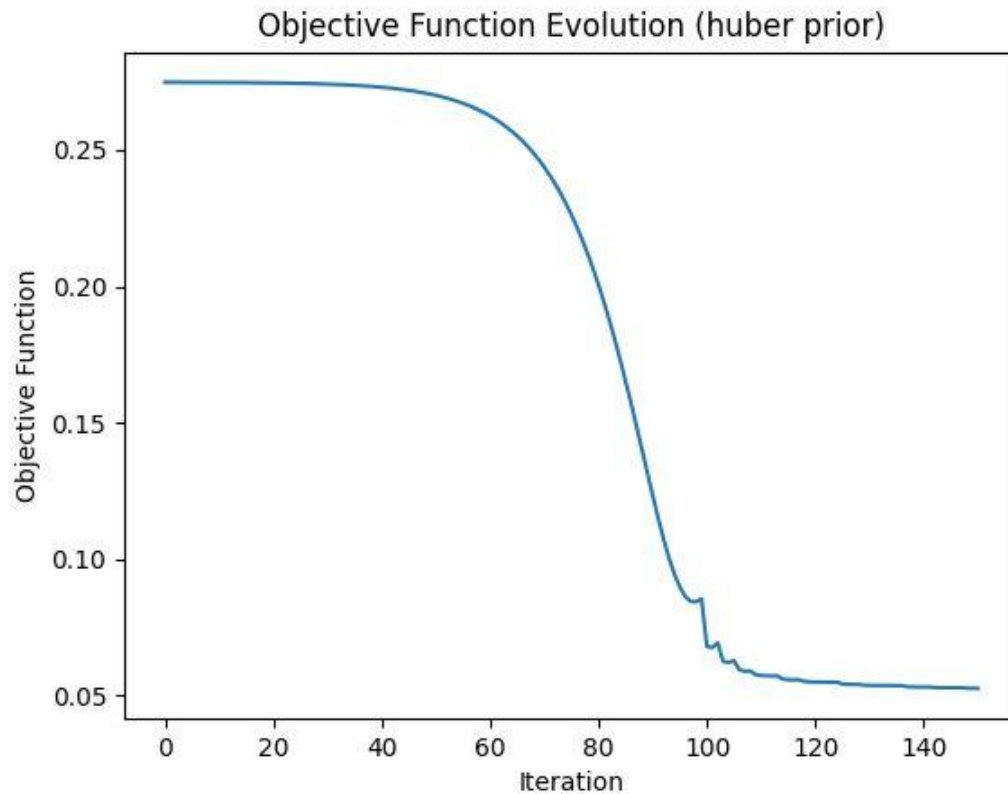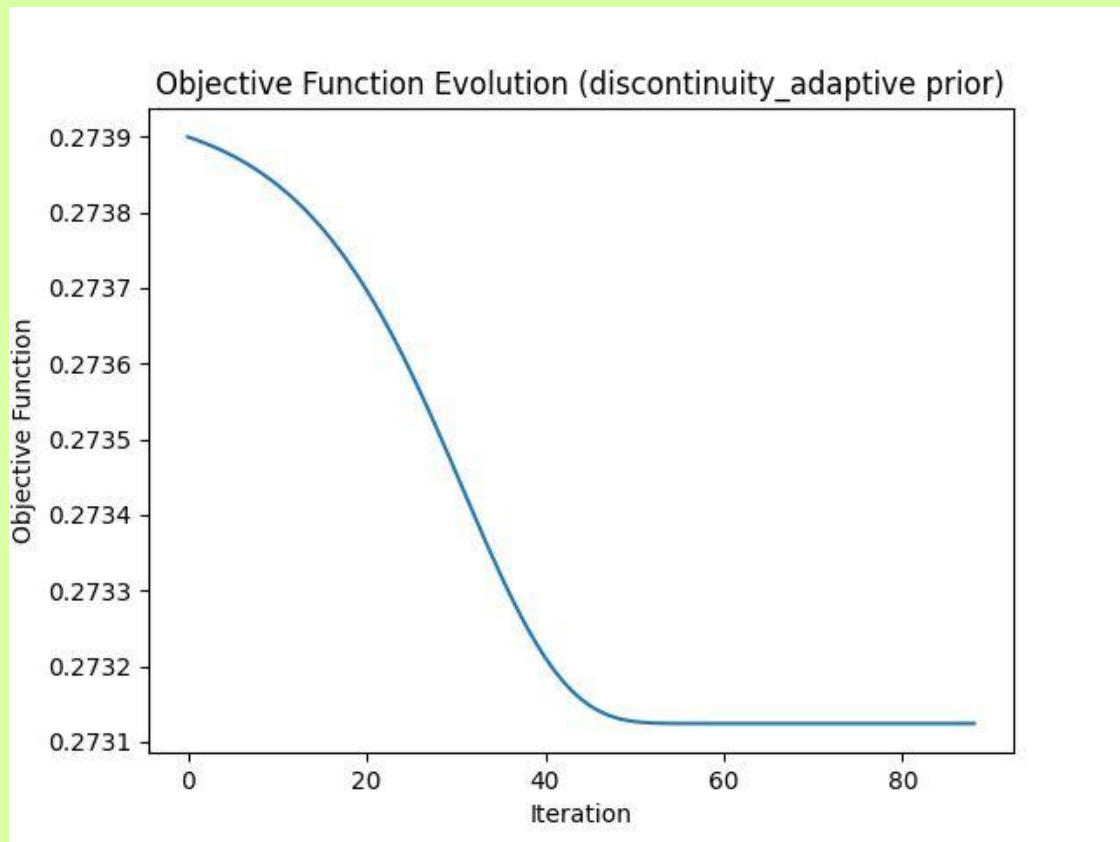
a.   RMSE original = 0.20111

b.   Quadratic prior (a*,b*) = 0.06418, _
c.   RRMSE quad(a*,b*) = 0.19345

d.   Huber prior (a*,b*) = 0.79269, 0.005792
e.   RRMSE huber (a*,b*) = 0.19338

 f.   Discontinuity adaptive function prior (a*,b*) = 0.9409,0.00139
g.   RRMSE daf (a*,b*) = 0.19345

Part-2
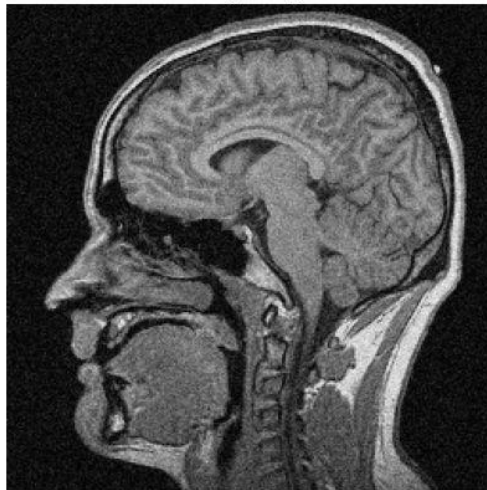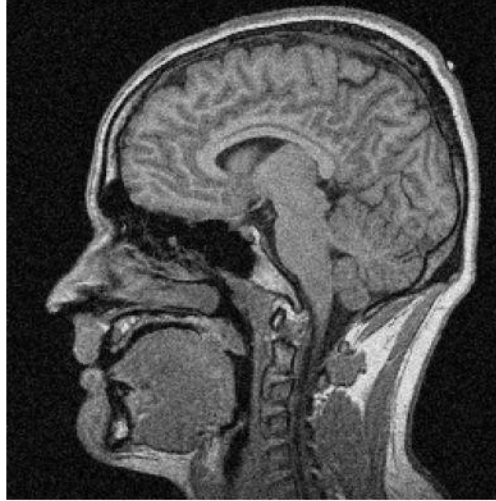
Quadratic

Clean Image · Noisy Image · Denoised Image

Part-2

Huber

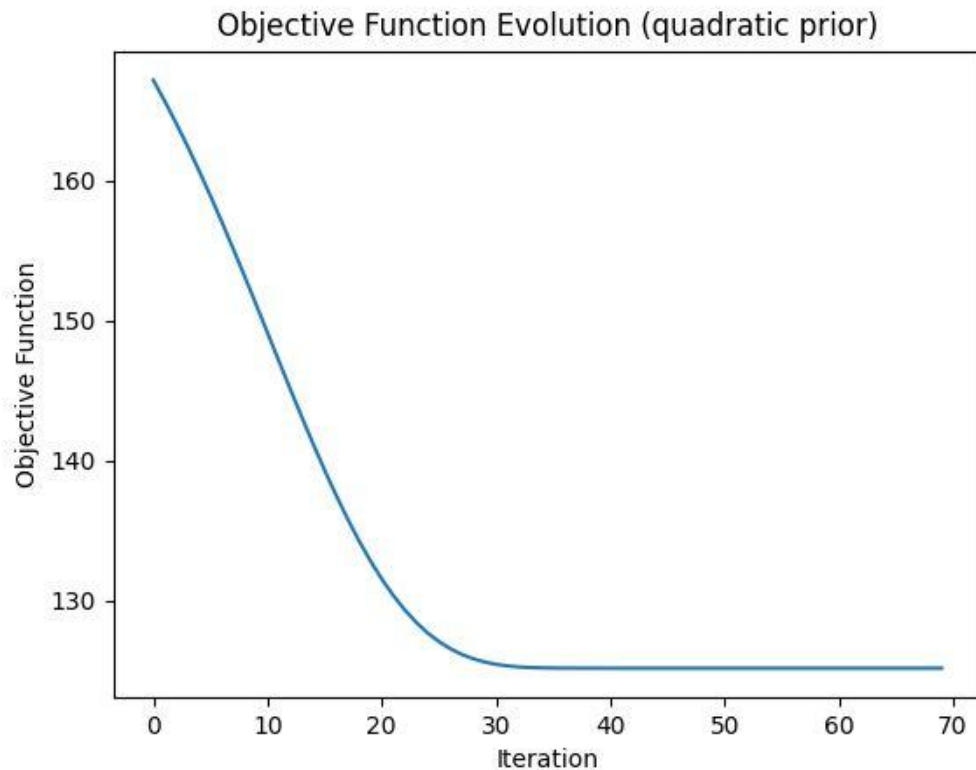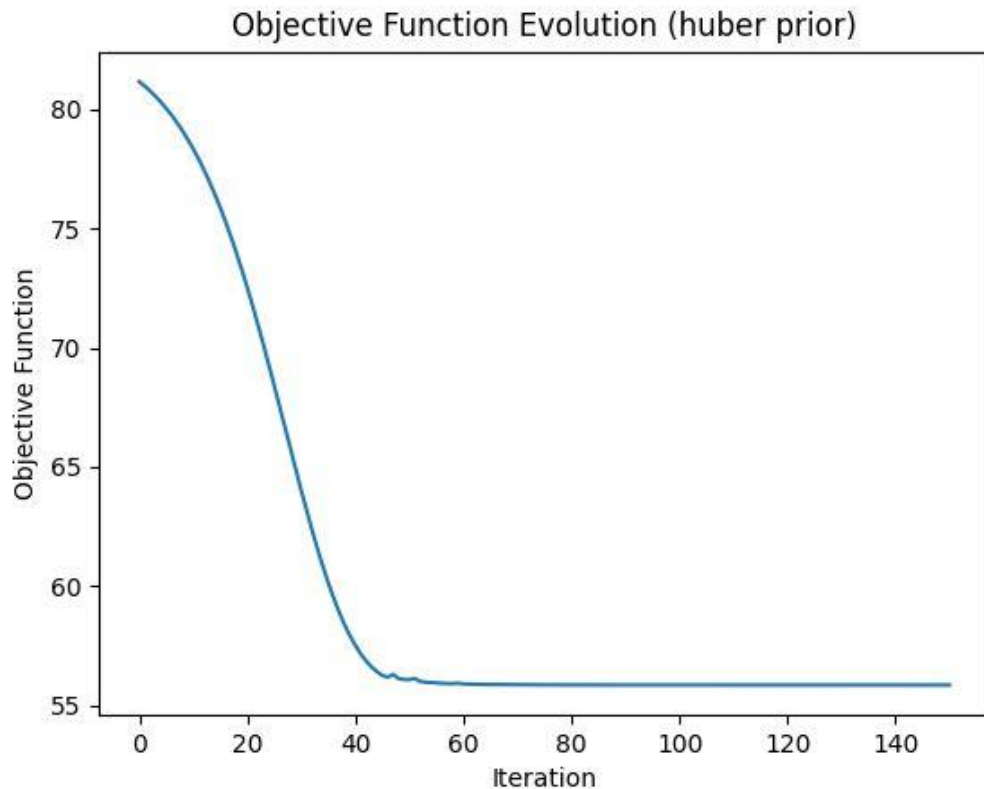Clean Image   Noisy Image   Denoised Image

Part-2

Daf

Part-2

Quadratic

Part-2

Objective Function Evolution (quadratic prior)

Huber

Part-2

Objective Function Evolution (huber prior)
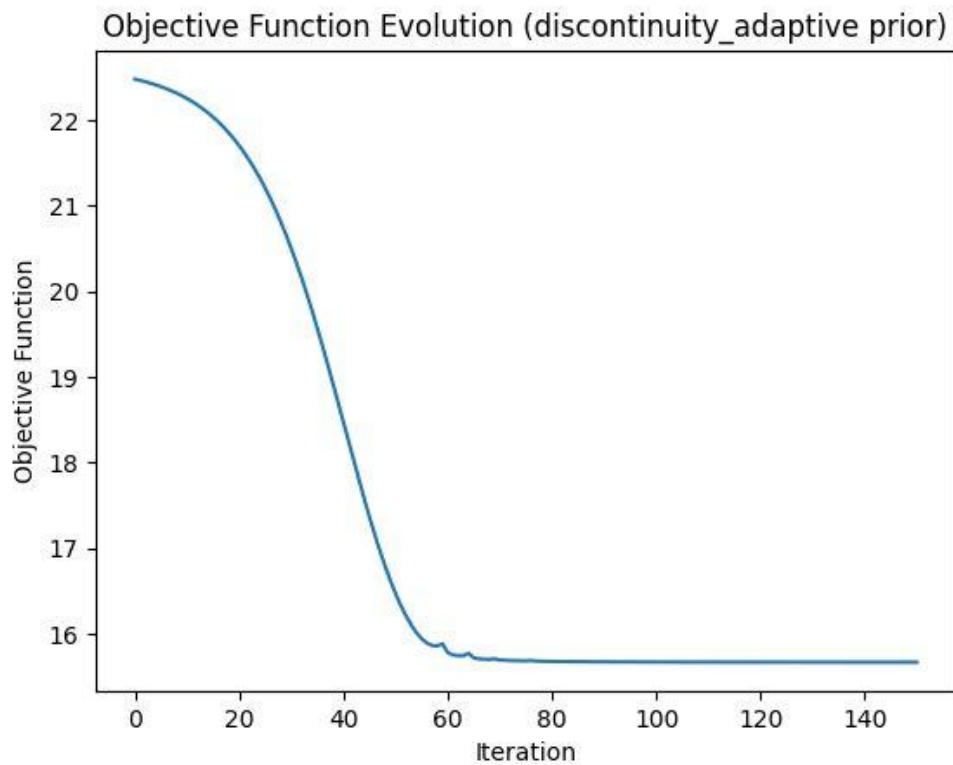
Daf

Part-2

Objective Function Evolution (discontinuity_adaptive prior)
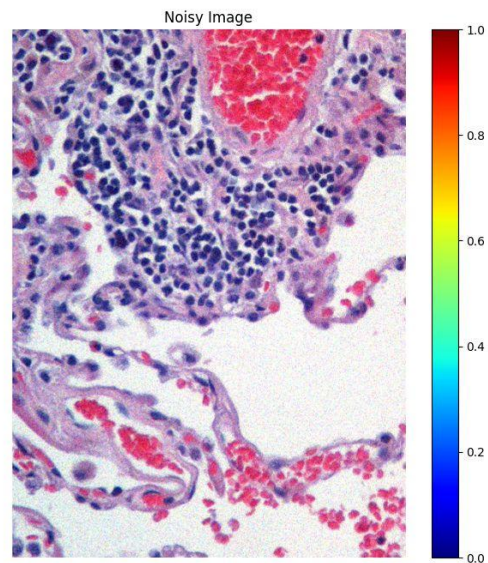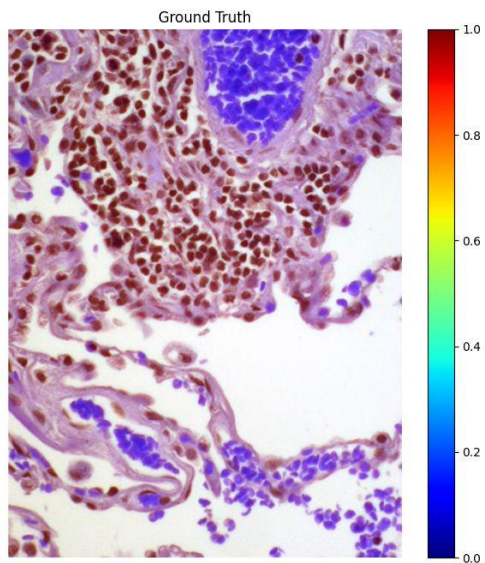
a. RMSE original = 0.29311
b. RRMSE Squared_l2(a*,b*) = 0.17954
c. RRMSE Huber_l1 (a*,b*) = 0.17747
d. RRMSE L2 (a*,b*) = 0.17560

Part-3

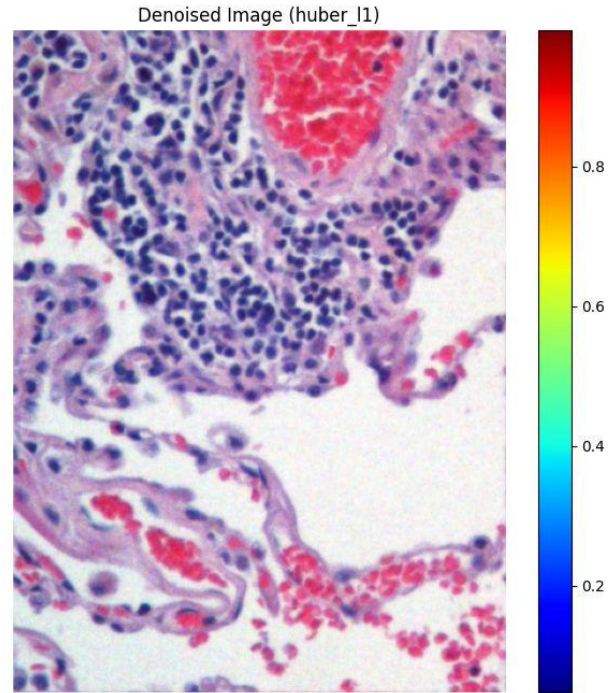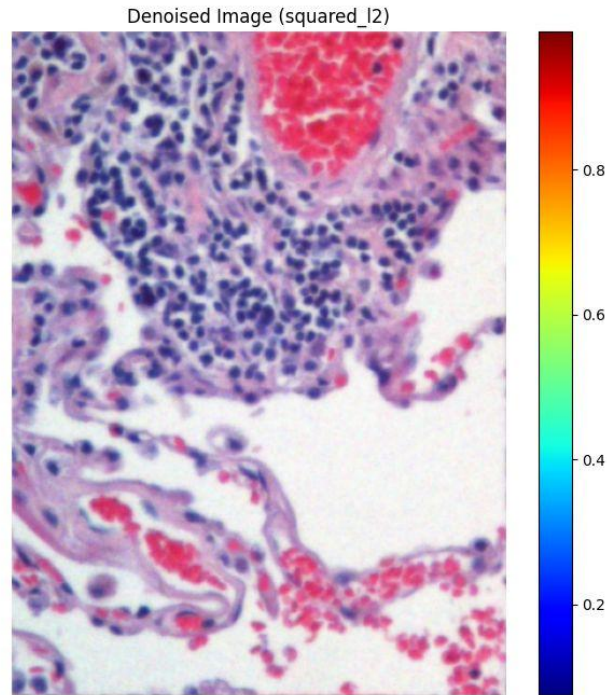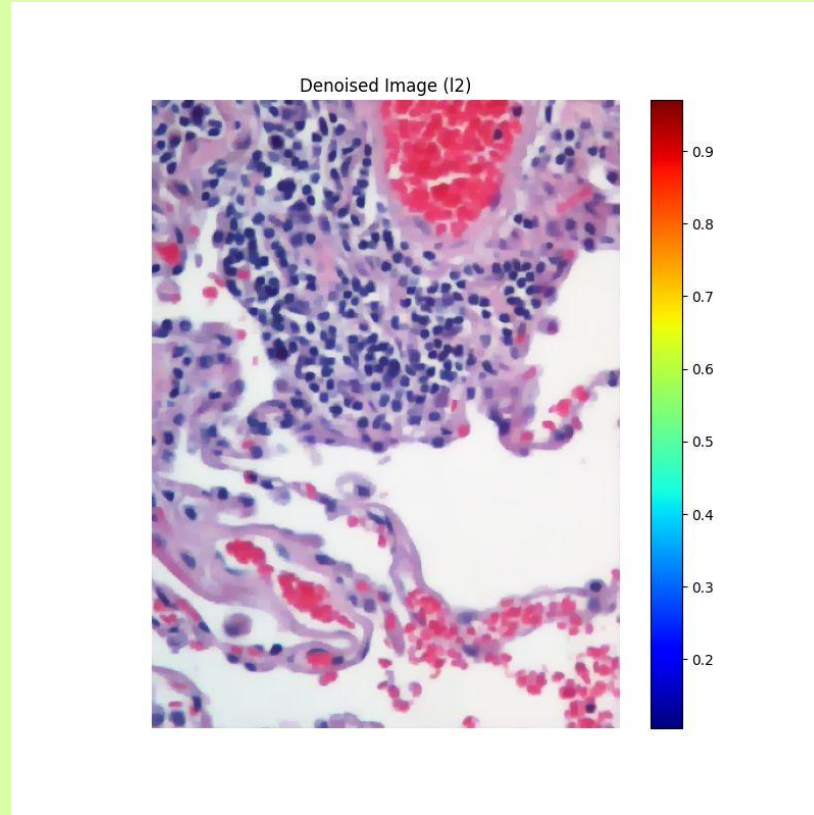Original + Noisy

Part-3

Huber_L1

Part-3

Denoised Image (huber_l1)

squared_L2

Part-3

Denoised Image (squared_l2)

L2
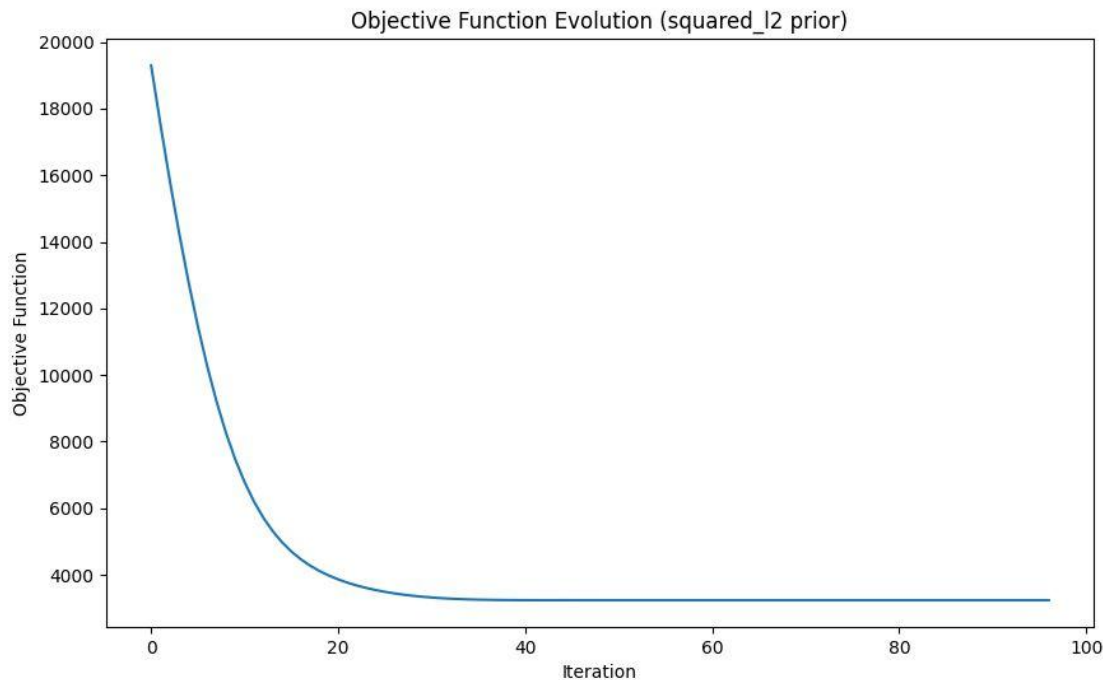
Part-3

Huber_L1

Part-3

Objective Function Evolution (huber_l1 prior)

squared_L2

Part-3

L2

Part-3

Objective Function Evolution (l2 prior)