

Optimisation and Deep Learning for Imaging and Vision I

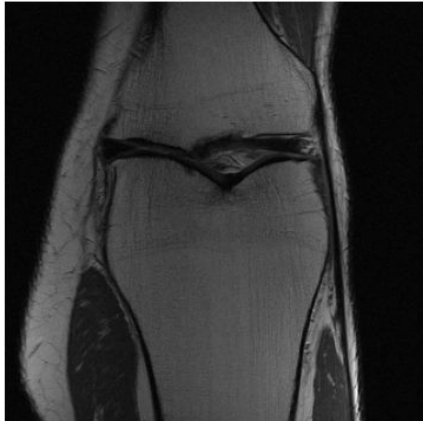
Project Updates

Week 7 - M1

ADMM - Default vs. Spread Spectrum

Evaluated on the first image of the Test Set using default parameters

Original Image



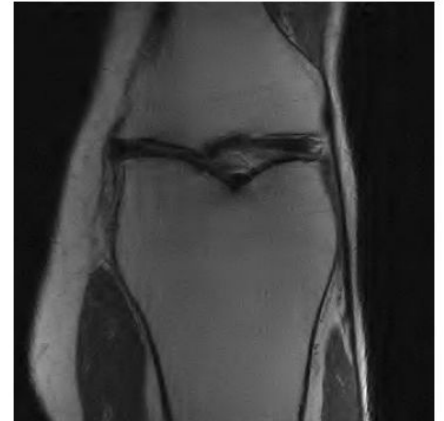
Backprojected
SNR: 13.80 dB, SSIM: 0.6848



Reconstructed - ADMM
SNR: 14.33 dB, SSIM: 0.6328



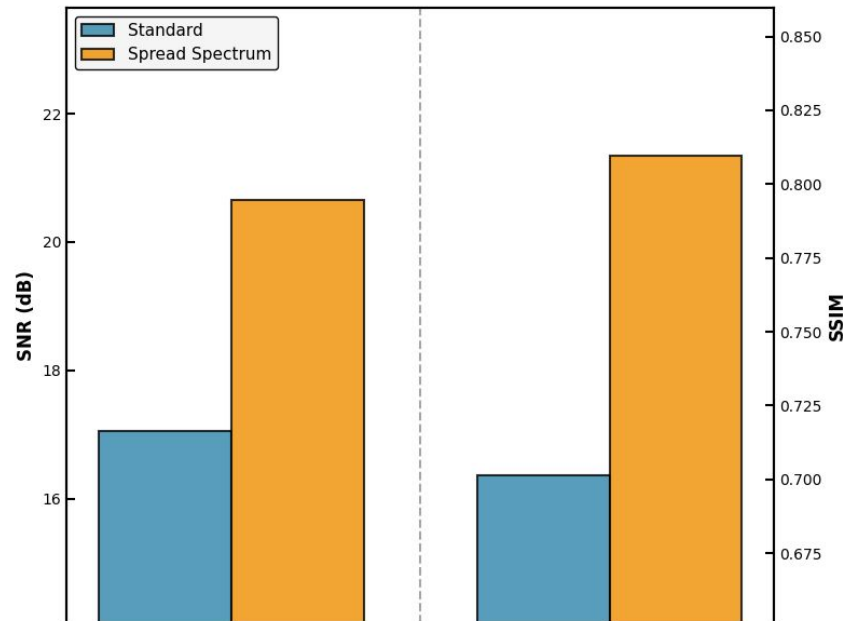
Reconstructed - ADMM + Spread Spectrum
SNR: 20.88 dB, SSIM: 0.8340



Week 7 - M1

ADMM - Default vs. Spread Spectrum

Average Performance across Test Set
using default parameters



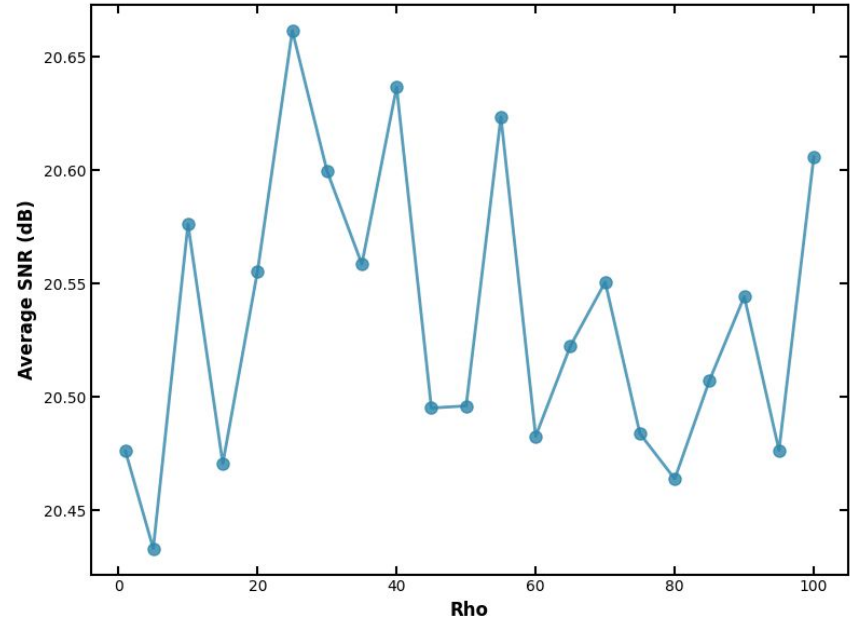
Week 7 - M1

Spread Spectrum - Rho

Average Performance across Test Set
using default parameters

→ $\rho = 25$

**Is this statistically robust enough?
Should we average across multiple
runs?**

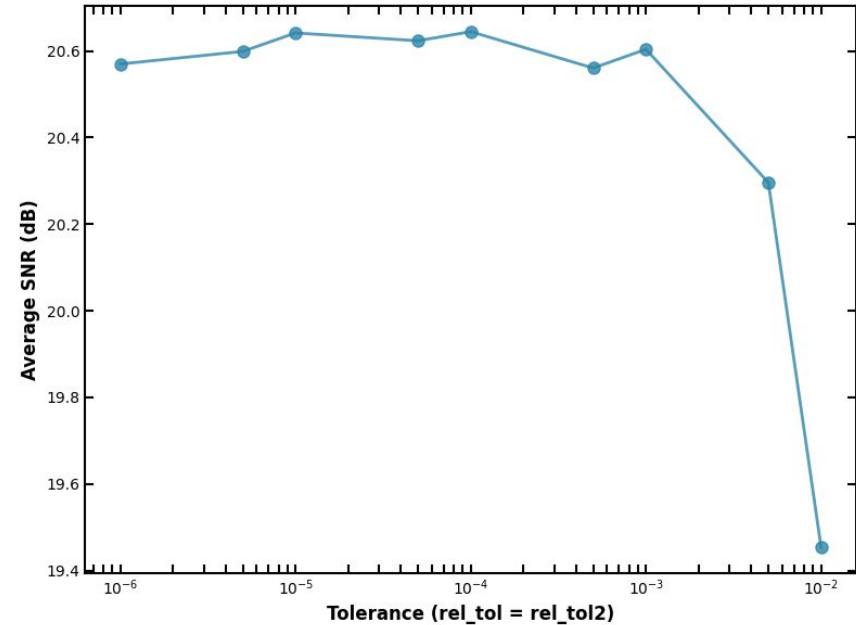


Week 7 - M1

Spread Spectrum - Relative Tolerance

Average Performance across Test Set
using default parameters and $\rho=25$,
 $\text{max_iter}=10000$

→ $\text{rel_tol} = \text{rel_tol2} = 1\text{e-}4$



Week 7 - M1

Questions:

- Use TV Norm instead of l_1 ?