Visualizing the Loss Landscape of Neural Nets

• Analyzes the influences of architectural choices on the loss landscape and thus explains why certain „tricks“ and structures are easier to optimize
Visualizing the Loss Landscape of Neural Nets

- Summarize paper and explain background
- Code available
- Bonus: Visualize landscape for speech models
Noise2Noise: Learning Image Restoration without Clean Data

- Trains a denoiser with just noisy training data; no clean data needed!
Noise2Noise: Learning Image Restoration without Clean Data

• Summarize paper and explain background
• Code available
• Bonus: Apply method to noisy speech signals
How Does Batch Normalization Help Optimization?

• BN popular technique for training NNs but poorly understood
• Shows that effectiveness of BN is not related to internal covariance shift
• Rather, BN smoothes the loss landscape and thus leads to better gradients, a more stable training and faster convergence
Robustness May Be at Odds with Accuracy

• Shows that there is a trade-off between adversarial robustness and (training) accuracy for any classifier
• Feature representations learned by robust classifier are fundamentally different
Spherical Latent Spaces for Stable Variational Autoencoders

• Uses a von Mises-Fisher distribution instead of a Gaussian distribution as the prior in a Variational Autoencoder
• Avoids “collapse” of latent space