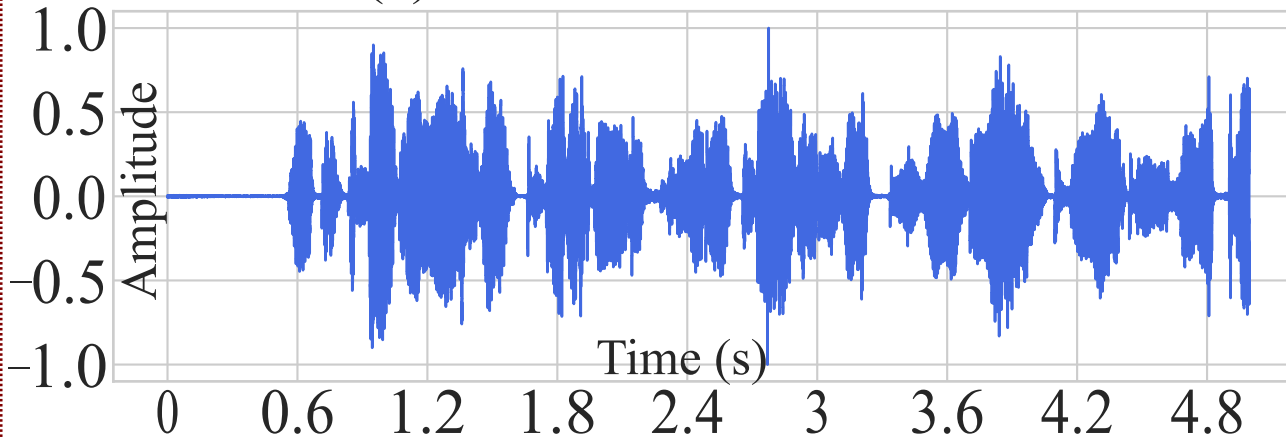
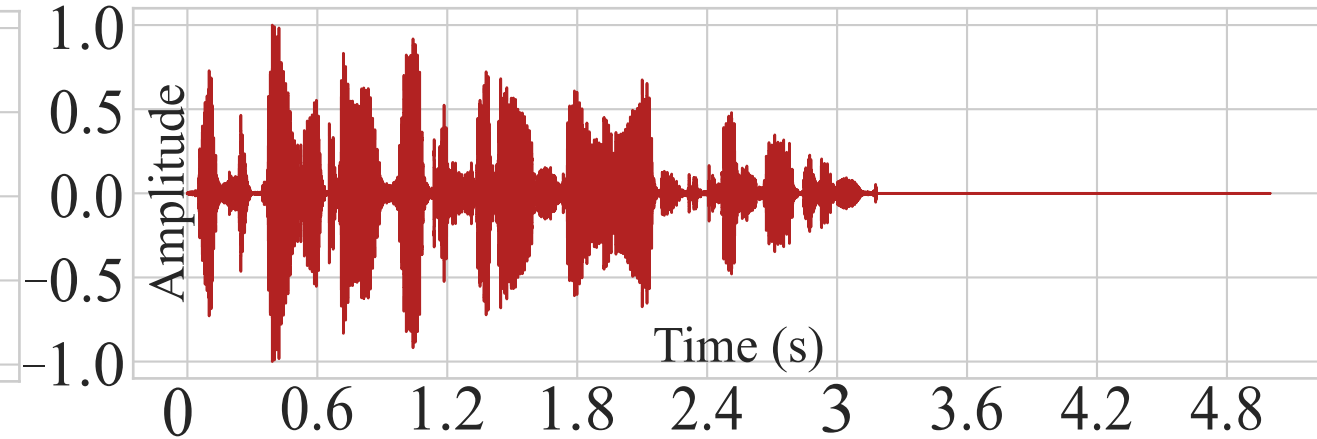


LibriSpeech_vs_ASvspoof: Clean vs. Spoofed Audio Analysis

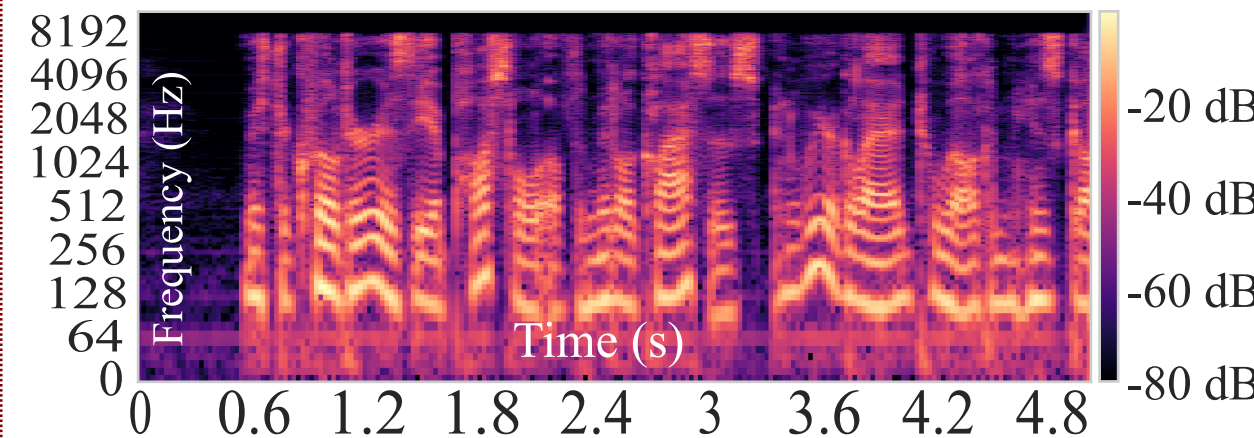
(a) Clean Voice Waveform



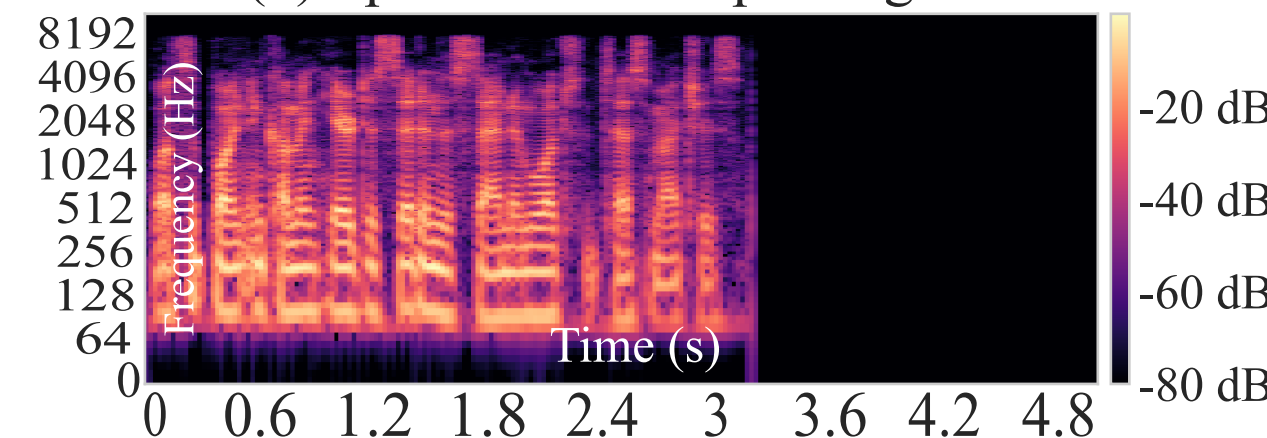
(b) Spoofed Voice Waveform (Adversarial)



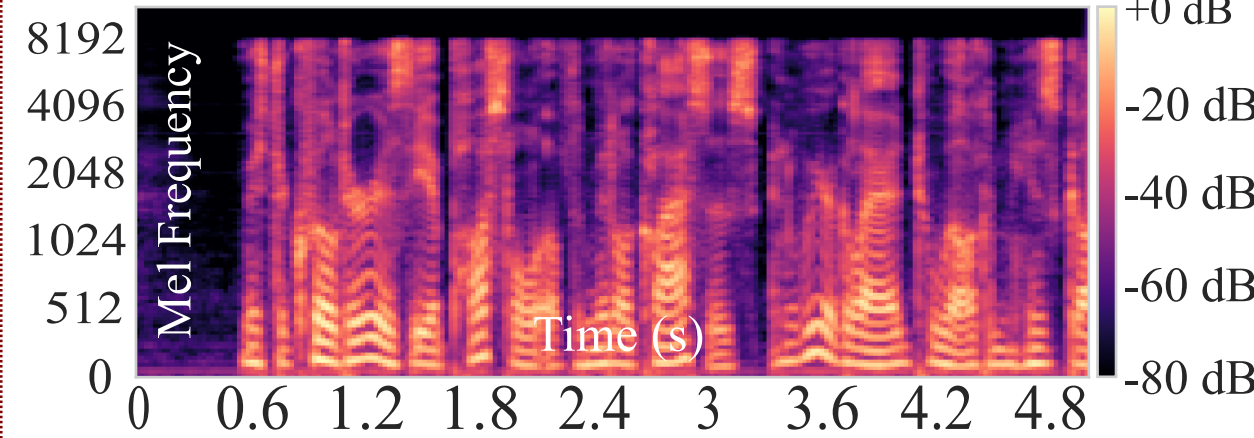
(c) Clean Voice Spectrogram (Log Scale)



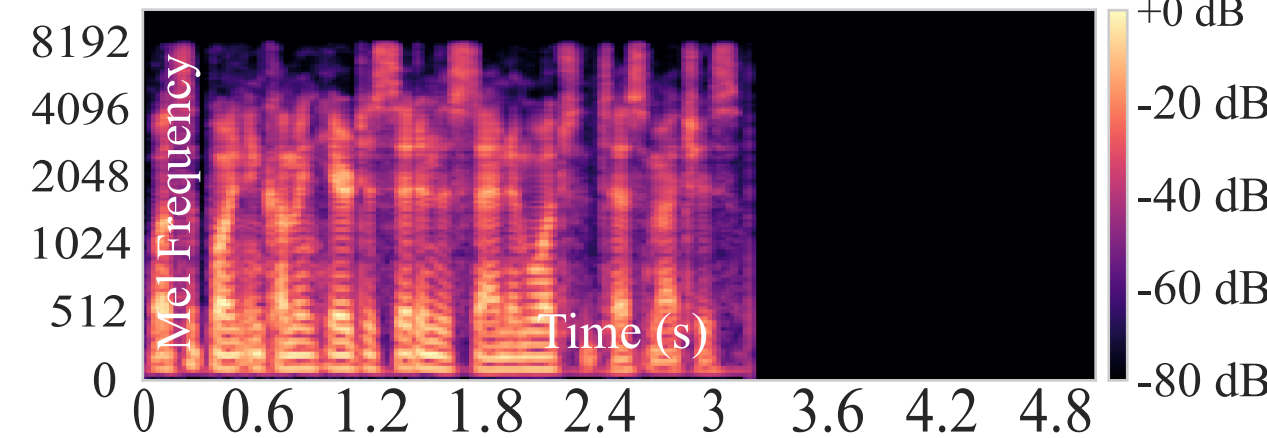
(d) Spoofed Voice Spectrogram



(e) Clean Log-Mel Spectrogram

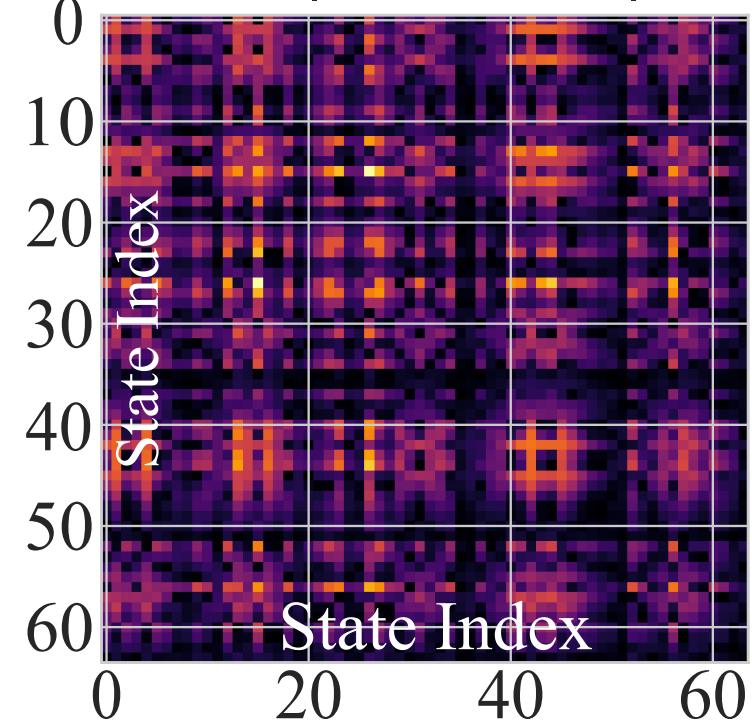


(f) Spoofed Log-Mel Spectrogram

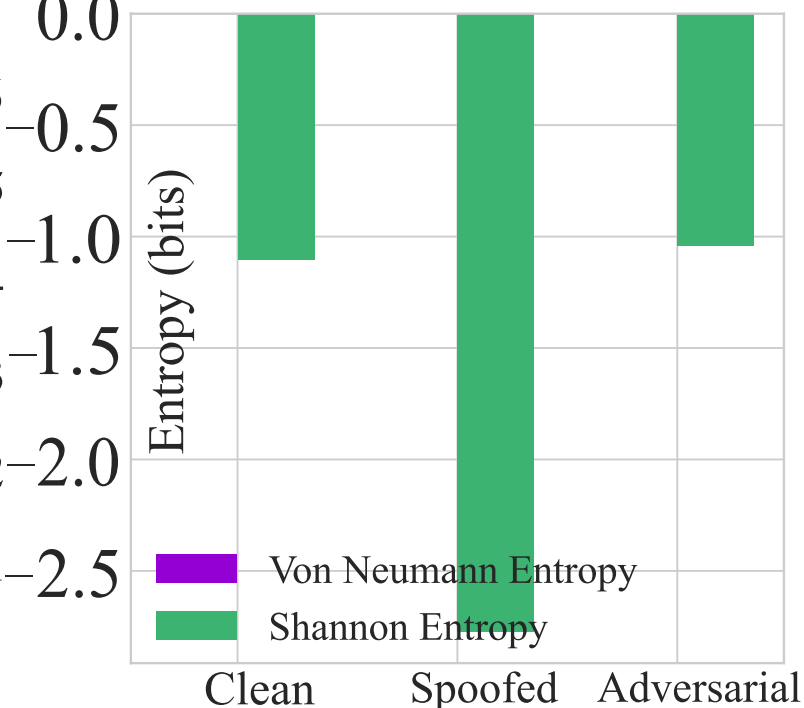


Quantum Metrics Comparison: Comparative Quantum Metrics Analysis

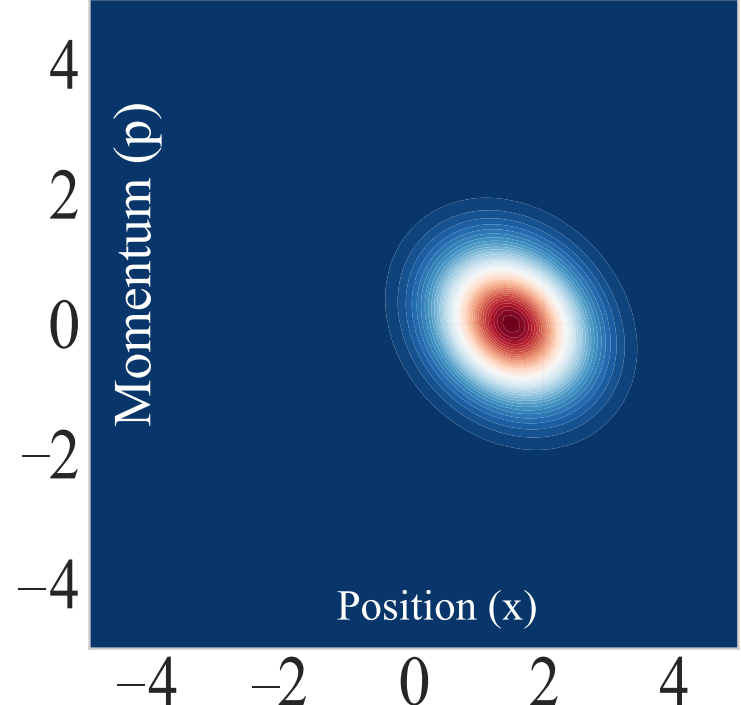
(a1) $|\rho_{clean} - \rho_{adv}|$



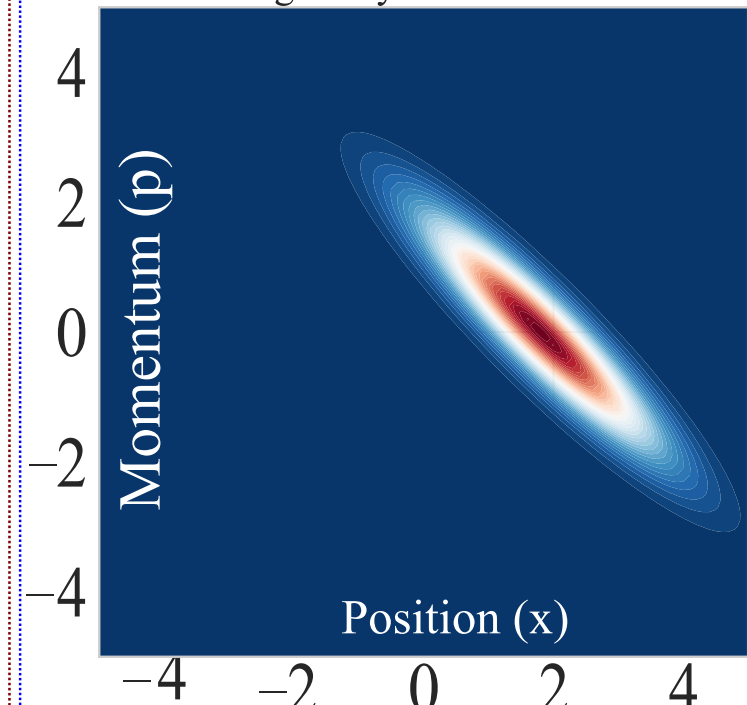
(b1) Information Theoretic Content



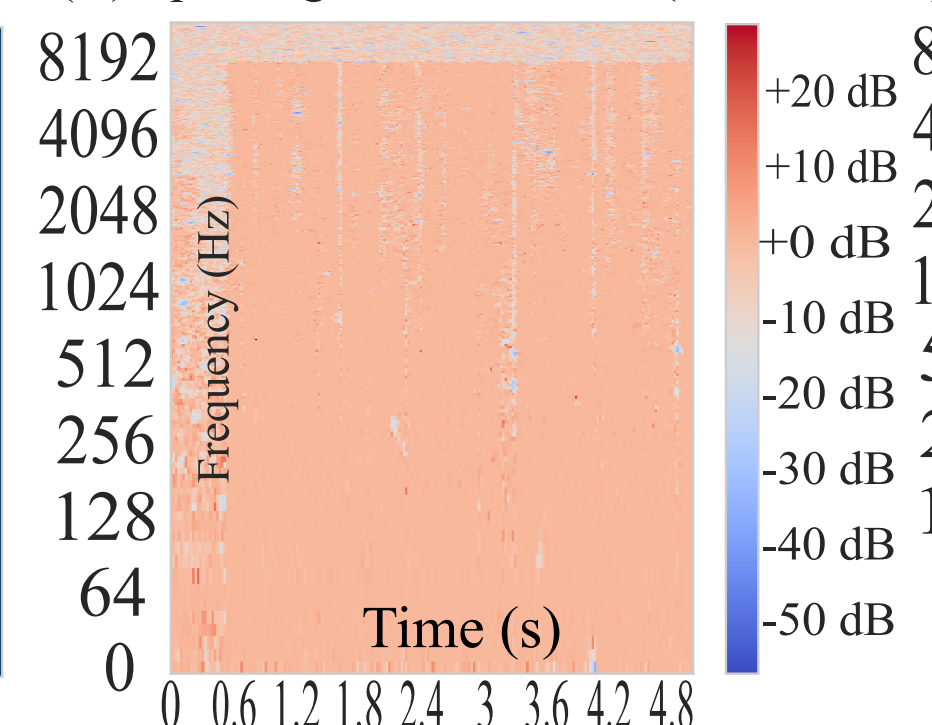
(c1) Wigner Fn (Clean State)
Negativity $\mathcal{N} \approx 0.000$



(d1) Wigner Fn (Spoofed State)
Negativity $\mathcal{N} \approx 0.000$



(e1) Spectrogram Difference (Clean - Adv)



(f1) Adversarial Perturbation

