Supporting Information

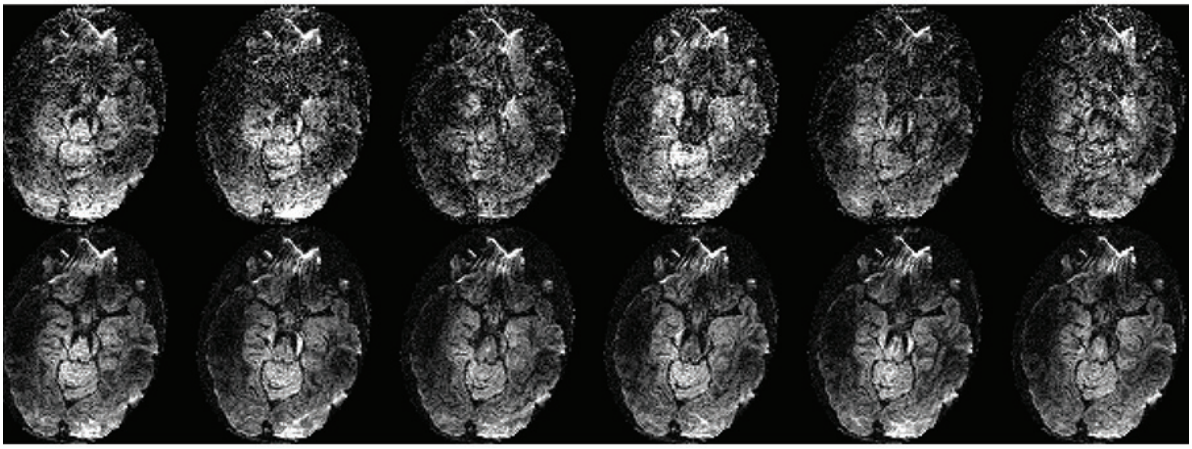
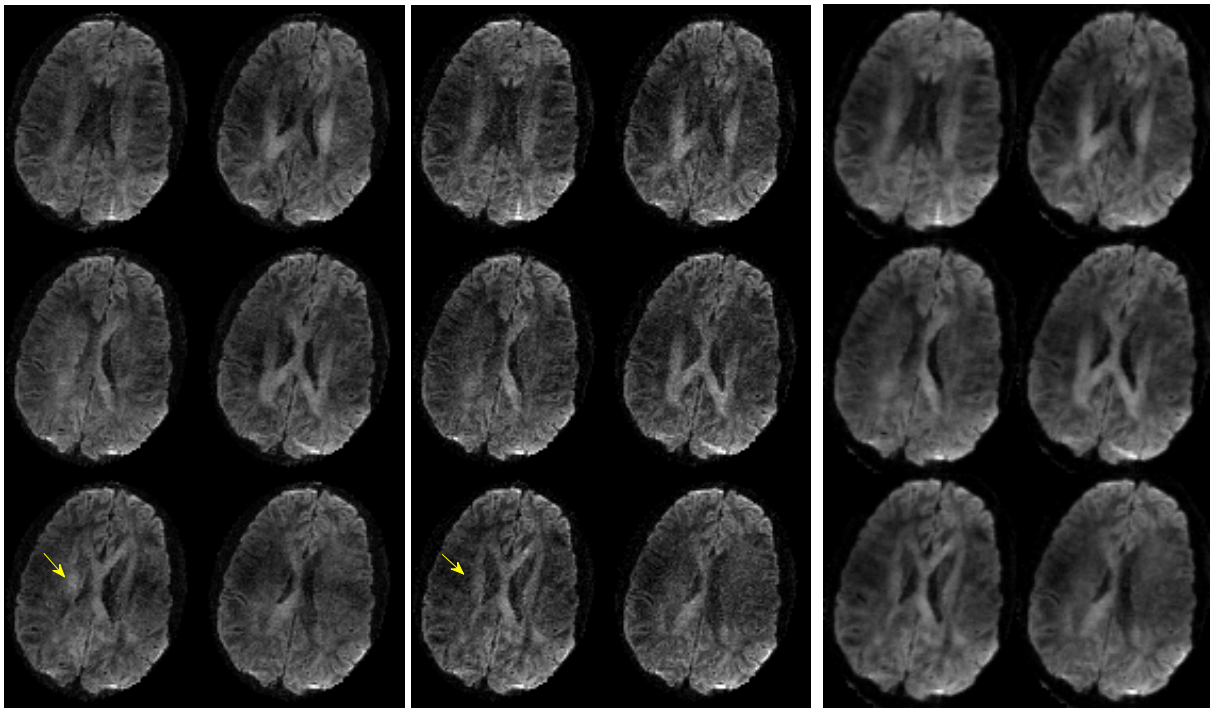
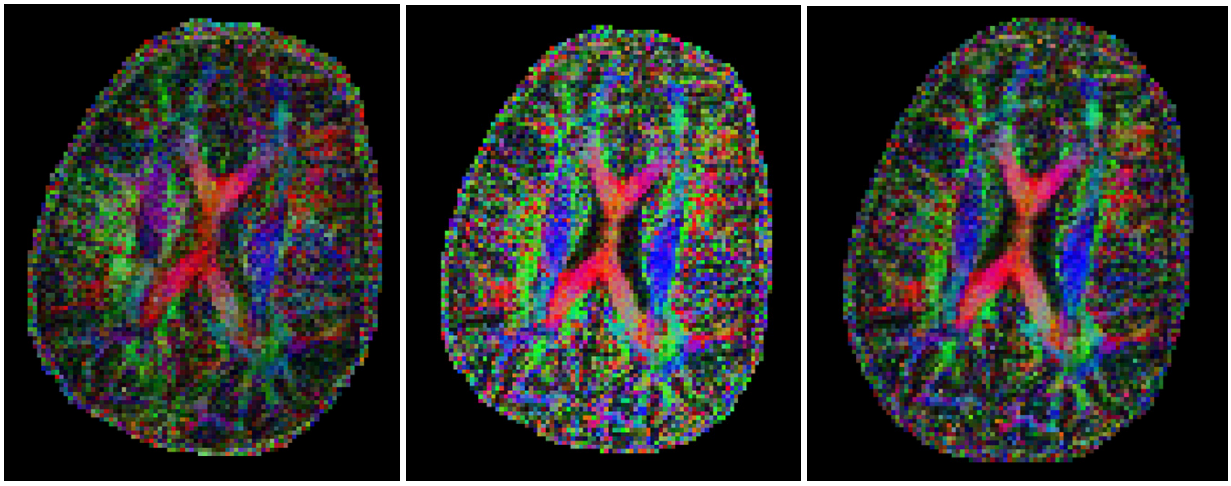


Figure S1: DWIs reconstructed from a 6-direction (b=1000s/mm^2) 4-shot acquisition using conventional SENSE method (top row) and the proposed MUSSELS method (bottom row). Both methods use the coil sensitivity information only and do not use motion-induced phase estimates in the reconstruction. Conventional SENSE cannot achieve motion compensation while MUSSELS can recover artifact-free DWIs.



(a) POCSMUSE DWIs (b) MUSSELS DWIs (c) SR-MUSSELS DWIs

Figure S2: Reconstruction of the 6 DWIs from a noisy 4-shot 6-direction acquisition.



(a) POCSMUSE FA (b) MUSSELS FA (c) SR-MUSSELS FA

Figure S3: The FA maps computed from the noisy 4-shot 6-direction acquisition. The FA maps clearly show that the SR-MUSSELS offers robust reconstruction of noisy data while POCSMUSE reconstructions show visible artifacts.