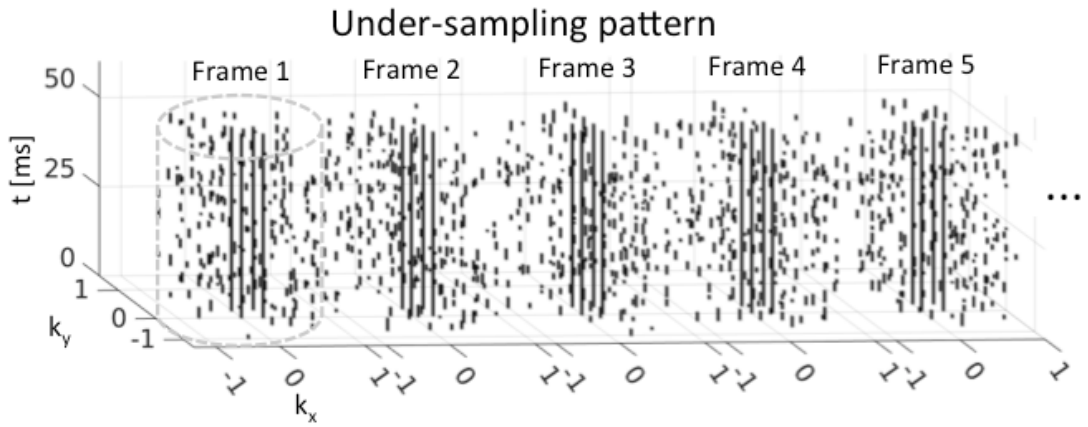

Supporting Figure S1 The 3D undersampling patterns for the first five frames. The undersampling factor was 3.8. All 3D undersampling patterns were on Cartesian grids and confined within a cylindrical boundary (dashed line on frame 1) in k_x-k_y-t space. For each frame, the undersampling scheme consisted of 14 phase encodings (i.e., 14 excitations). Among them, 10 phase encodings followed the random walk trajectories in k_x-k_y-t space with stochastic time delays. The other 4 phase encodings fully sampled the t dimension of the center k_x-k_y plane. For different frames, the 3D undersampling patterns were all independently generated to create randomness along the frame dimension. Note that such undersampling patterns allowed randomness in all dimensions.