Time-encoded imaging (TEI) is the practice of localizing a radiation source by moving shielding material past a detector to vary the count rate over time. TEI systems can resolve the spatial location of a radiation source using only the time of interaction in a detector. Work is being conducted on advancing cylindrical TEI (cTEI) and spherical TEI (sTEI). For cTEI, image quality when transitioning to smaller diameter systems is retained through physical and post-processing optimizations. Varied layers and geometries of tungsten and polycarbonate mask elements are used for dual-particle modulation of gamma-rays and neutrons. Before post-processing, the geometric angular resolution of the current 1D cTEI system is ~25o azimuthally. This performance is improved to ~1.5o by utilizing pseudo-optimization metrics with random coded aperture patterns, experimentally derived sensing matrices, and compressed sensing. The next iteration of the cTEI system, which incorporates tungsten on the side of open coded aperture voxels, has been 3D printed and testing is forthcoming. In more exploratory work, a novel sTEI system is being developed. The geometry of the coded aperture voxels resembles an 80-sided regular icosahedron. The current spherical design will have three axes of rotation with a scintillator and wireless electronics and will be portable via a lab cart. The spherical coded aperture mask is currently being modeled and simulated before it is 3D printed for in-lab testing. The sTEI system is being designed so that the free rolling movement of the sphere (similar to “BB-8”) in an open volume can be incorporated in future work.