Project proposal:

I would like to investigate the sauropod hiatus that spans the Jurassic-Cretaceous boundary. Sauropods, among the largest organisms of the Mesozoic, were initially thought to have gone extinct at the end-Jurassic (although the Jurassic-Cretaceous is not defined by this). Later discoveries of sauropods in the early Cretaceous established sauropods as Lazarus taxa, but it was unclear if their near-absence form the fossil record was due to some extinction event (with only a few stragglers surviving) or simply preservation biases that prevented their incorporation into the fossil record (despite no apparent drop in diversity). Recent research supports the sedimentological hypothesis, working off the assumption that sauropods were driven further inland due to the expansion of the Western Interior Seaway. This migration put them out of the main depositional regime and thus prevented their remains from being preserved. However, significant ecological changes across the Jr-K, such as changing vegetation and new predators, are factors that should not be ignored. My original scope was to pit the two hypotheses against each other, using Macrostrat data from the late Jurassic/early Cretaceous and morphological comparisons across the boundary to determine the degree of faunal turnover. However, due to obvious constraints, I’ve decided to ratchet back my ambition to focus primarily on assessing morphological changes as a means to test the veracity of an extinction/diversity decline hypothesis.

Other ideas:

If the sauropod idea doesn’t pan out, my backup is examining body sizes in the aftermath of mass extinctions, using foram dimensions.