Using Deep Learning to Identify Fossils of the Atlantic Coastal Plain

In this project, we will train a neural network to classify fossil images from across the Eastern United States, spanning the rich Cretaceous beds of New Jersey to the diverse coastal deposits of Maryland, the Carolinas, and Florida. We will work collaboratively to develop a dynamic, Python-based toolkit for fossil image augmentation, convolutional neural network training, and model evaluation across a range of variables including dataset size, class count, and class balance. The result will be a powerful deep learning framework tailored to one of paleontology's more understudied regions, offering valuable tools for both professional researchers and fossil enthusiasts alike. Sitting at the intersection of biology, computer science, and geology, this project is ideal for students interested in applying bioinformatics to distinctive, real-world scientific research, with the potential to contribute to publishable findings.