

## POSTER 47

### **A 3D VIRTUAL ATLAS OF THE HEAD ANATOMY OF *ALLIGATOR MISSISSIPPIENSIS***

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During the past decade, three-dimensional visualization methods have moved to the forefront of comparative and evolutionary anatomy. The head, being the intersection of numerous organ systems, has featured prominently in many studies. However, the complicated nature of reptile and particularly crocodylian heads has not been thoroughly illustrated using these 3D techniques. *Alligator mississippiensis* is North America's model crocodylian species and offers numerous insights into the evolution and functional anatomy of this group of reptiles, as well as their relatives such as lizards, dinosaurs, and birds.

Here, we present the foundation of an interactive, 3D, web-based anatomical atlas of *Alligator* cranial anatomy, which includes comparative data from MRI, microMRI, CT, and microCT imaging techniques, supplemented with histology and dissection. The centerpiece of the page is a virtual, "dissectible" *Alligator* skull where each individual bone can be explored in a 3D environment. One head of a large alligator was CT-scanned and MR imaged, then imported into Amira (v5.1, Visage Imaging) segmentation software. We selected and highlighted individual skull elements using their sutural boundaries and created 3D, integrated, volumetric files. These files were then converted into web-based interactive models using Adobe Acrobat 3D, WireFusion and other software packages.

This site complements several existing online archives but will offer higher quality 3D models, as well as a more interactive environment. These data will be freely available to any online visitor interested in the head anatomy of *Alligator* including researchers, students, and the general public.