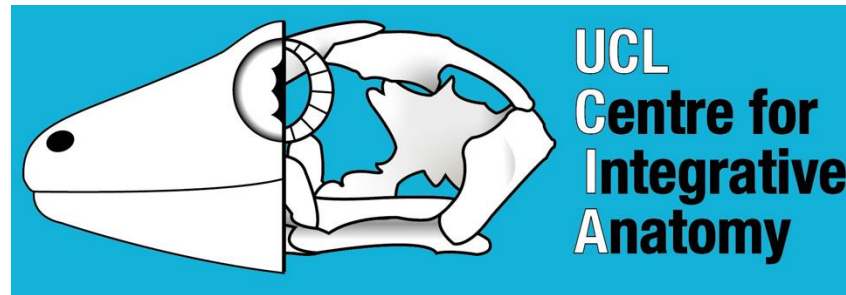


Who am I and Why am I here?

Ryan N. Felice



Analytical Paleobiology Workshop - Erlangen 2023

Background

- Bachelors of Science: Tulane University (New Orleans, USA) 2009
- PhD: Ohio University (Ohio, USA) 2015
- Postdoc: UCL and Natural History Museum (London) 2015-2018
- PI: UCL (London) 2018-present

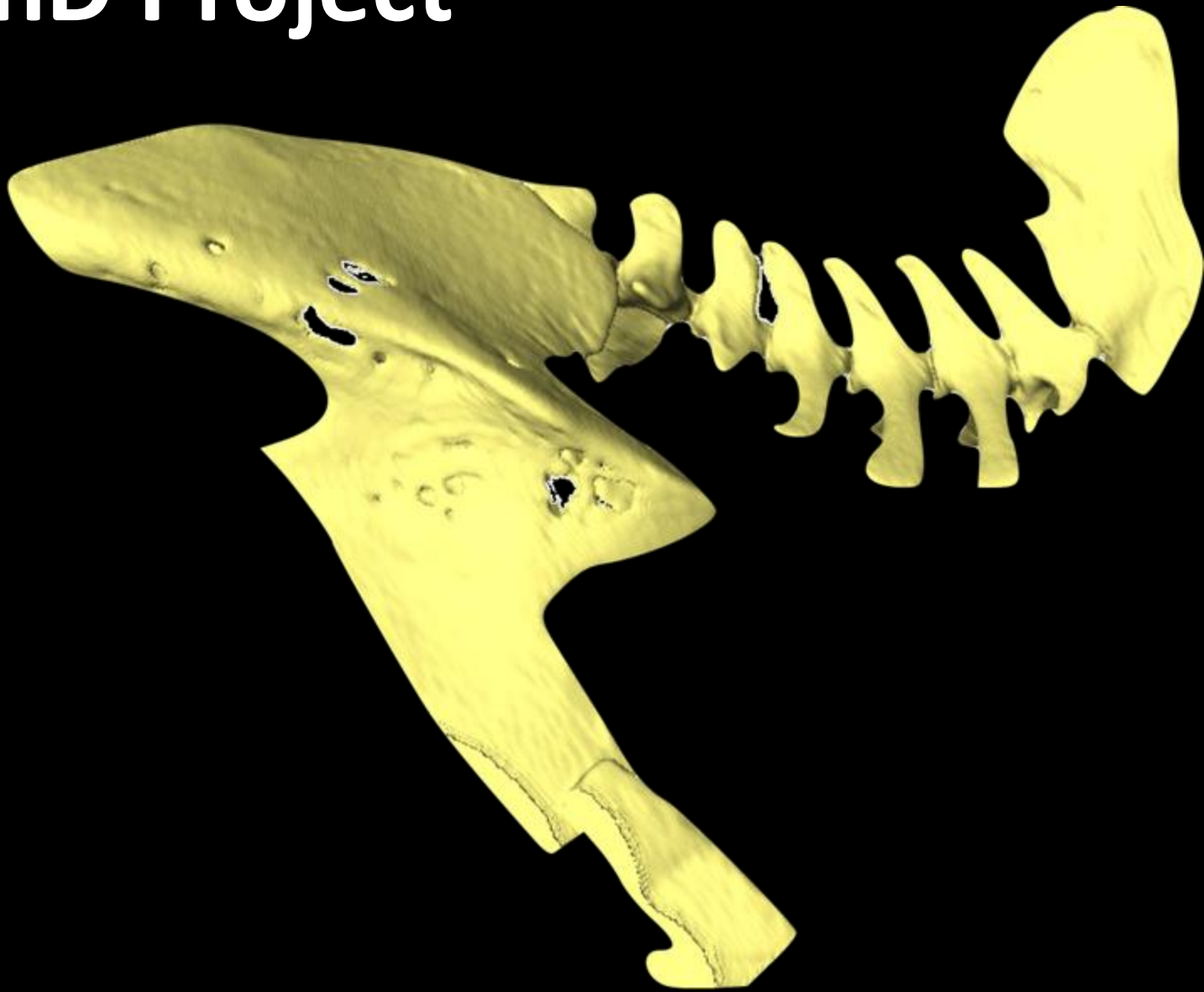
Research Interests

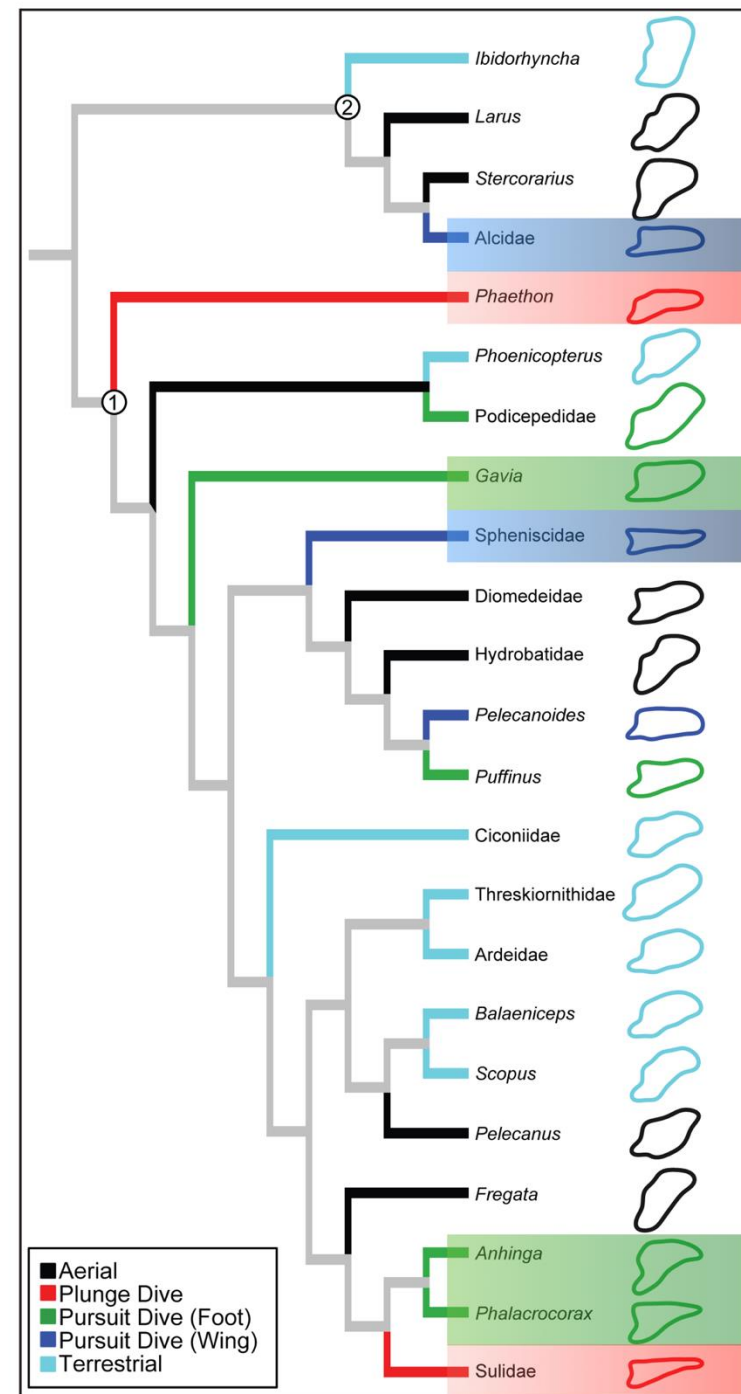
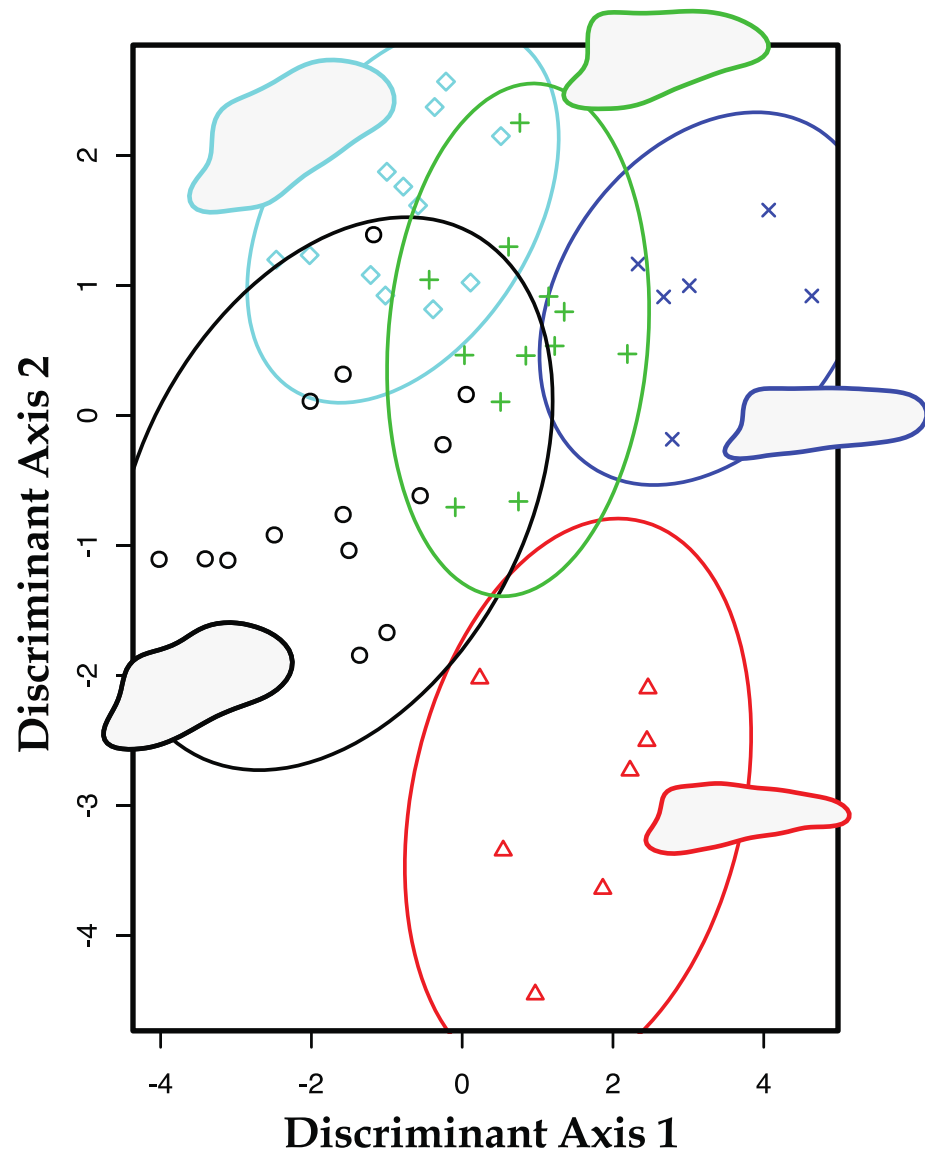
- Vertebral evolution
- Craniofacial evolution
- Macroevolutionary modelling
- Methods development



The Felice Lab

PhD Project

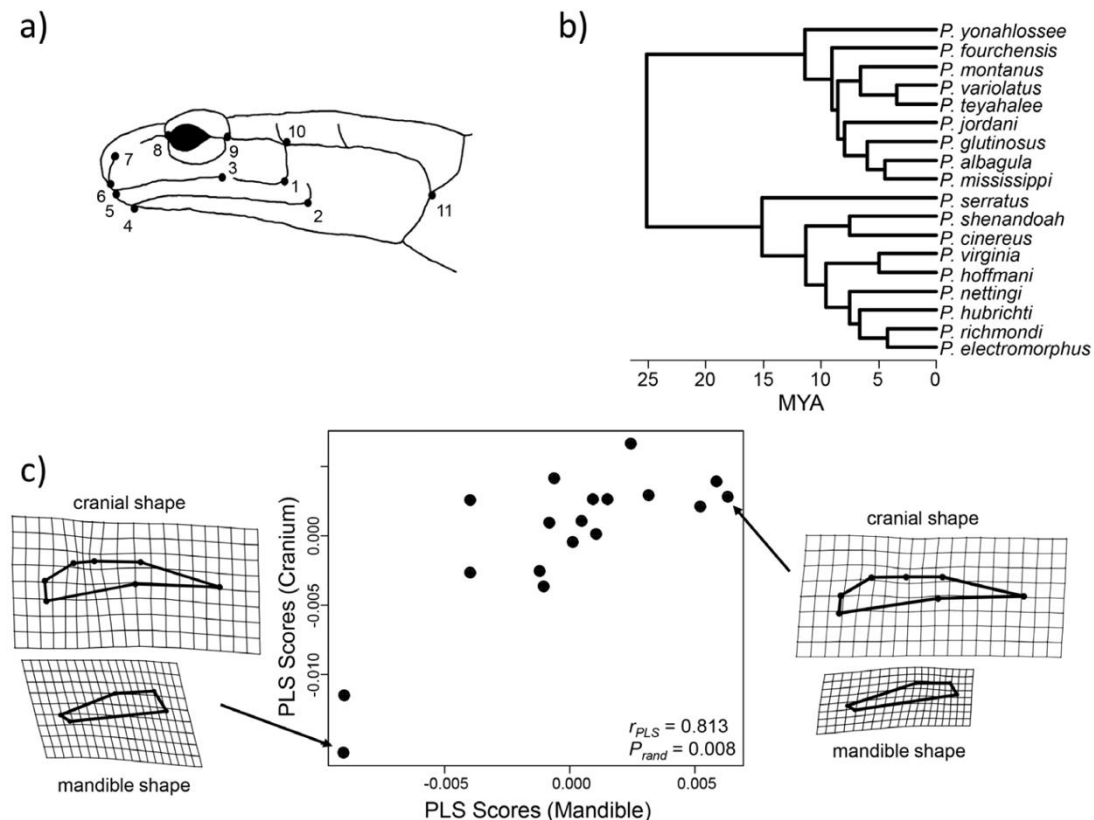




Assessing Trait Covariation and Morphological Integration on Phylogenies Using Evolutionary Covariance Matrices

Dean C. Adams^{1*}, Ryan N. Felice²

¹ Department of Ecology, Evolution, and Organismal Biology, Iowa State University, Ames, Iowa, United States of America, ² Department University, Athens, Ohio, United States of America

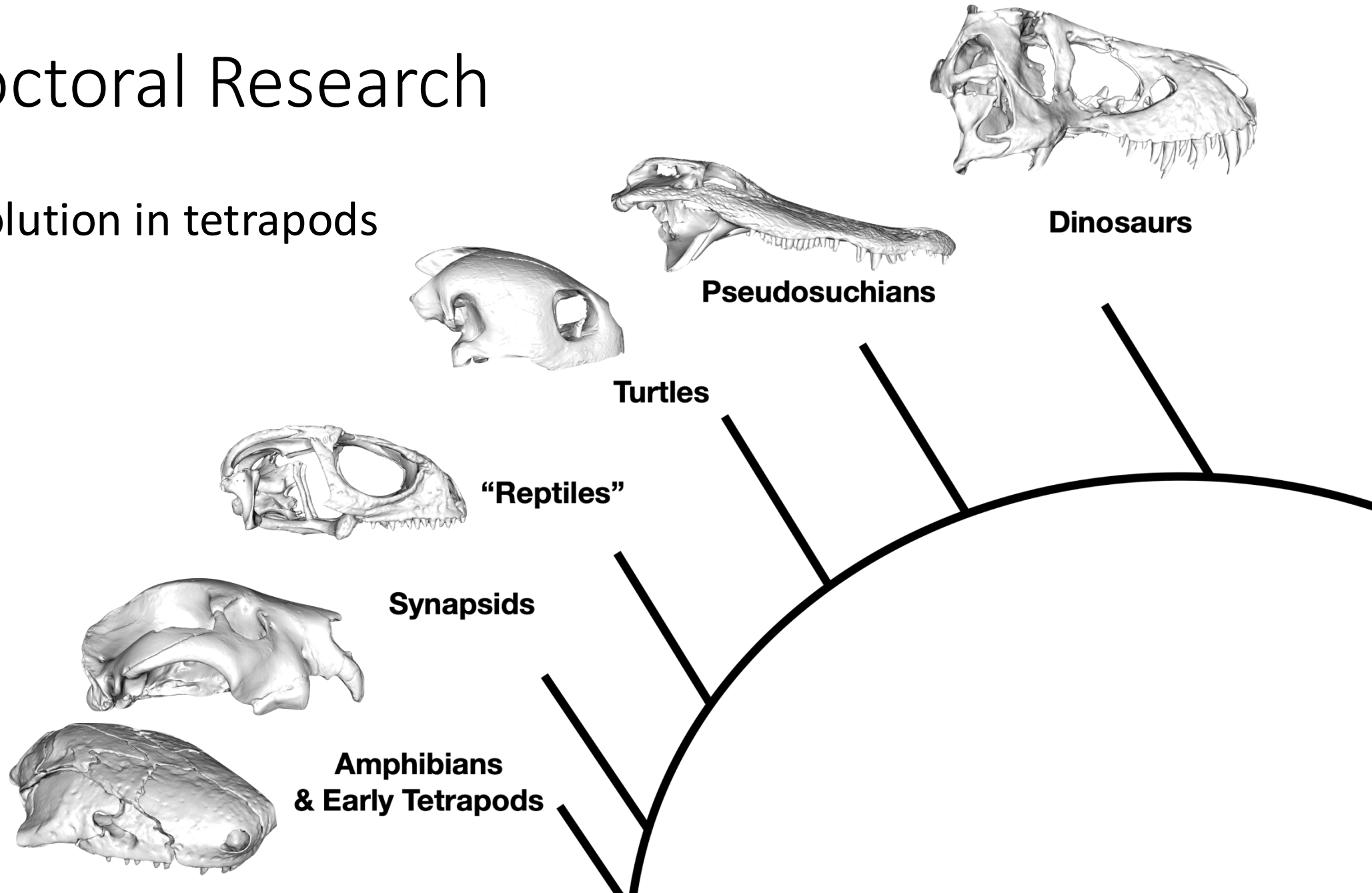


Postdoctoral Research

- Skull evolution in tetrapods

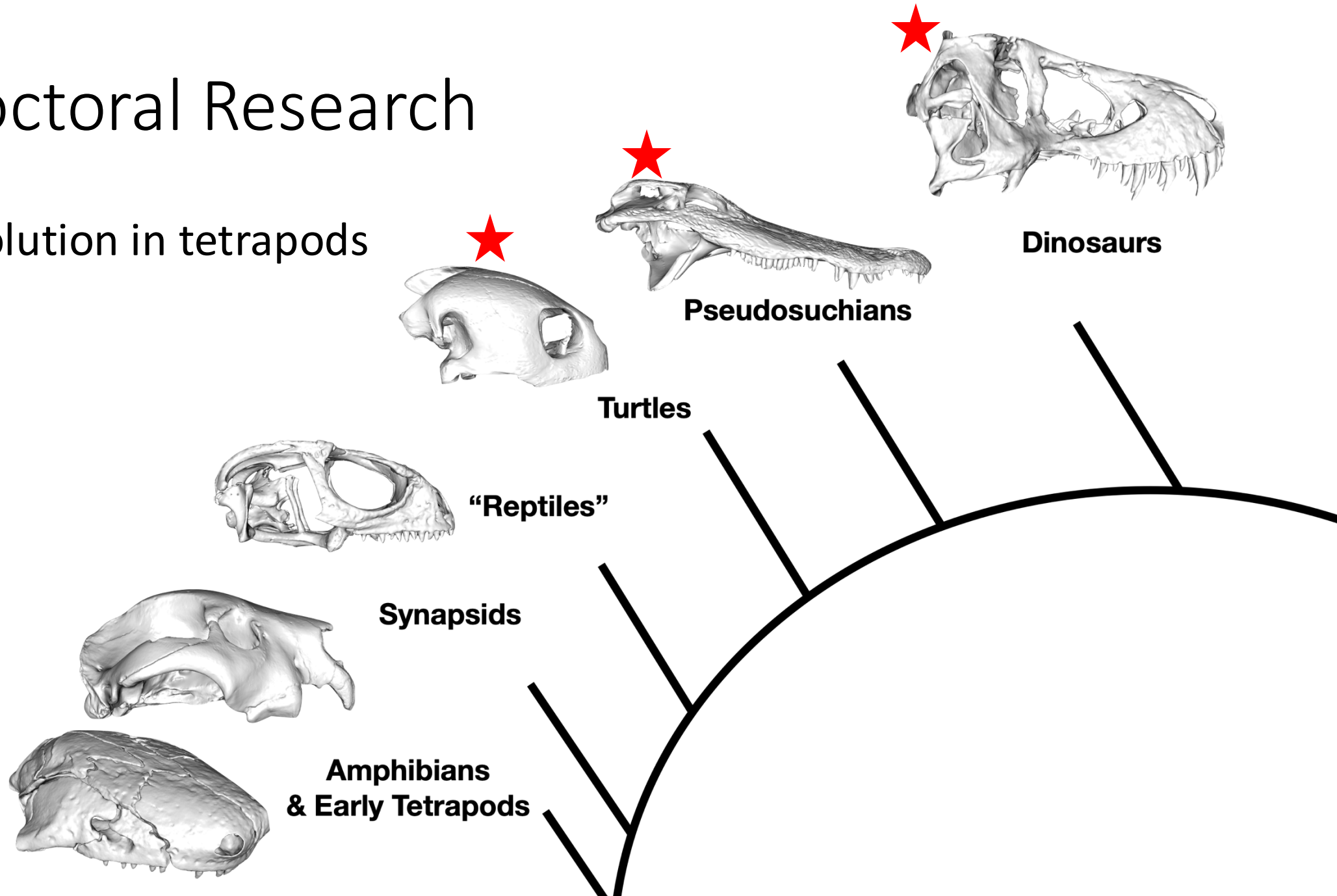


Prof Anjali Goswami
Natural History Museum

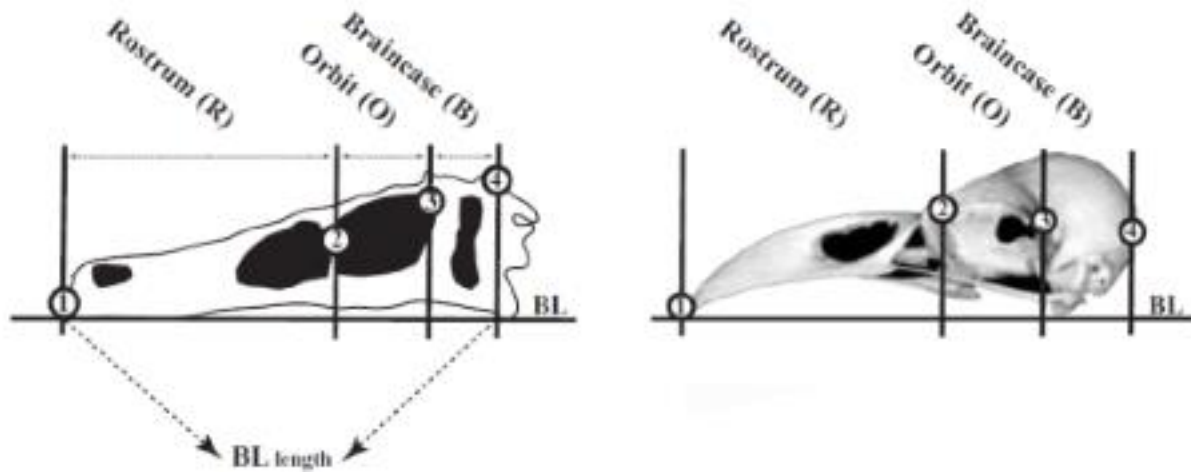


Postdoctoral Research

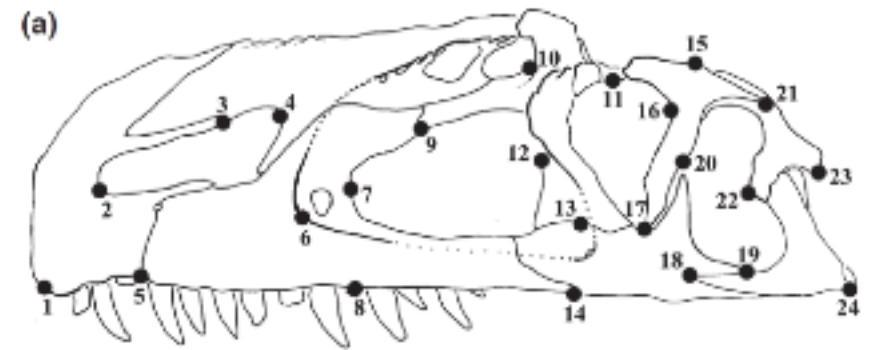
- Skull evolution in tetrapods



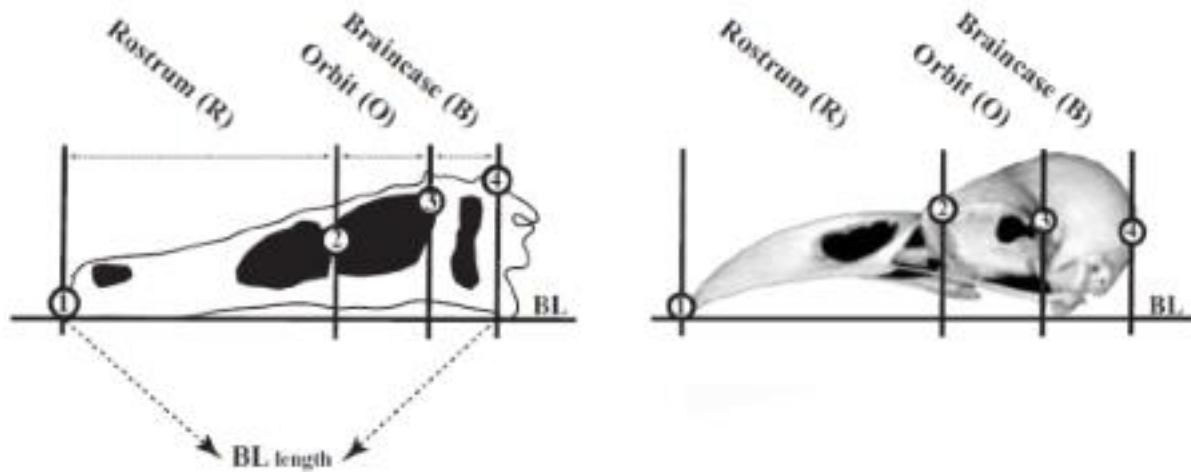
Prof Anjali Goswami
Natural History Museum



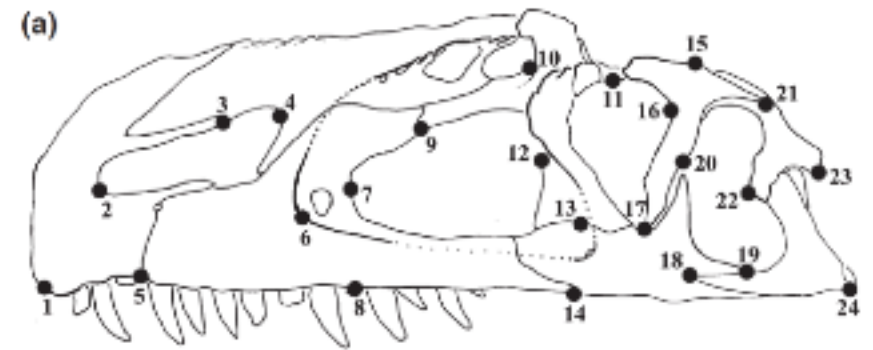
Marugán-Lobón and Buscalioni 2003
 56 extinct dinosaur taxa + 52 birds
 3 length measurements



Brusatte et al. 2012
 36 taxa x 13 landmarks
 26 taxa x 24 landmarks

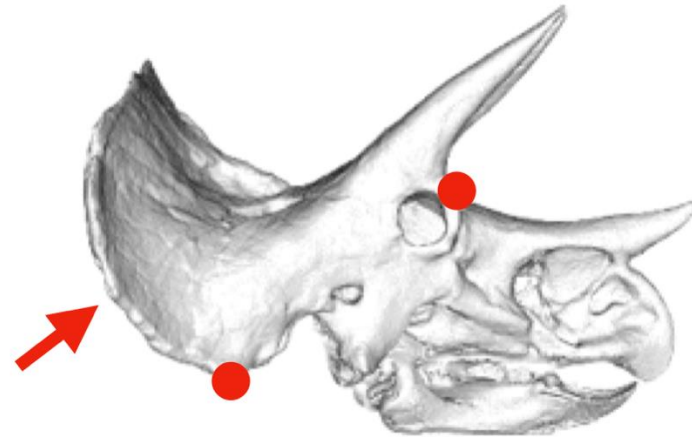
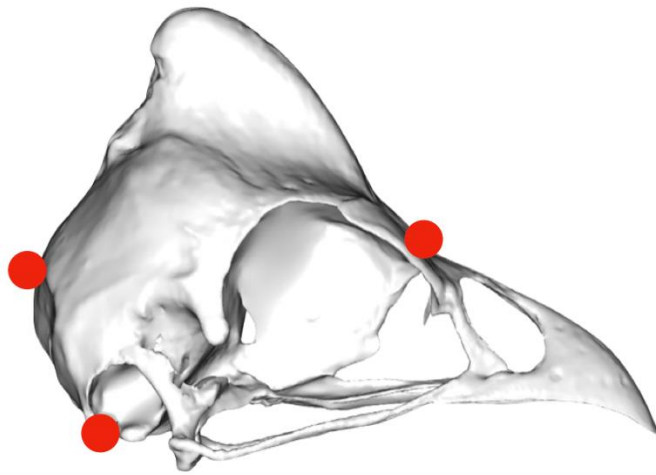


Marugán-Lobón and Buscalioni 2003
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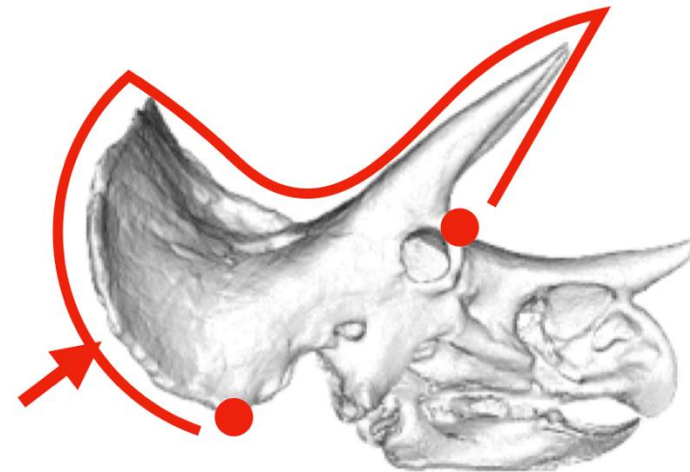
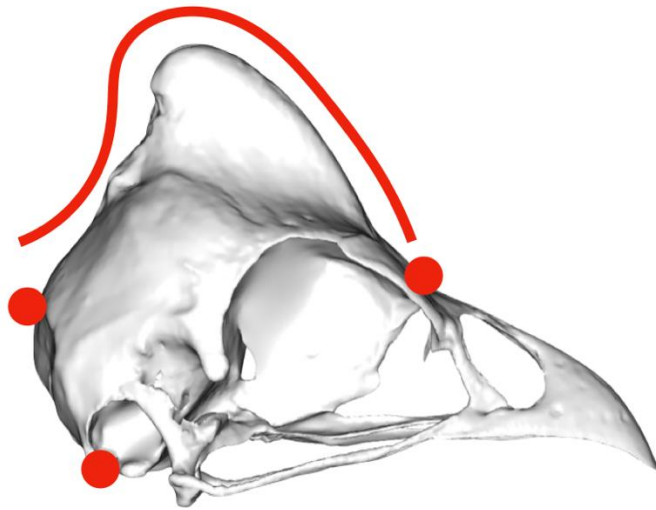


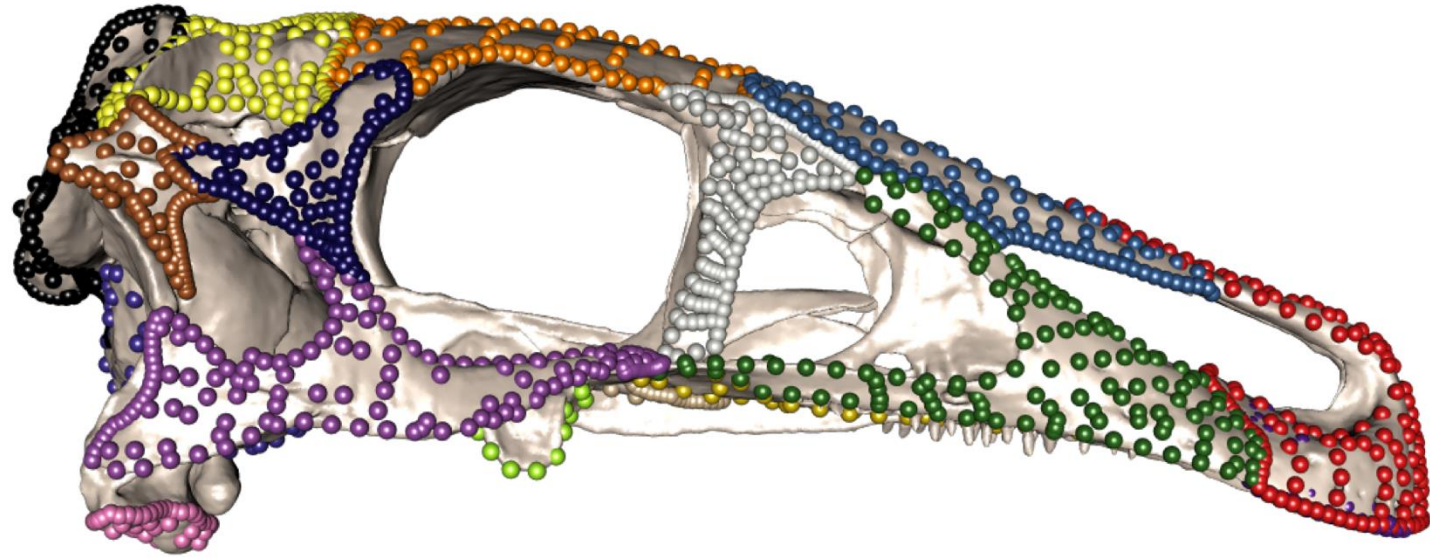
Brusatte et al. 2012
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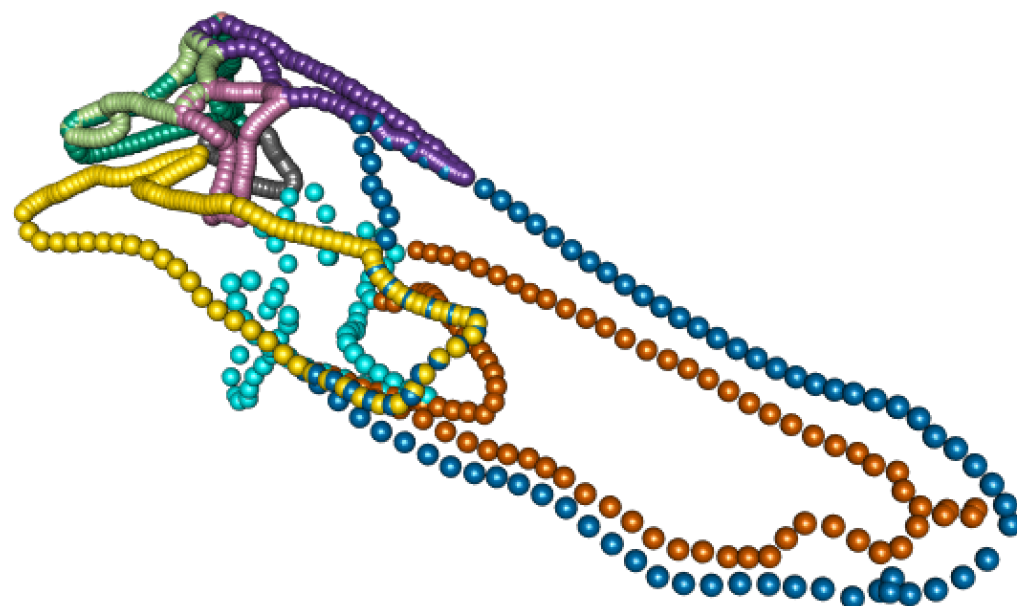
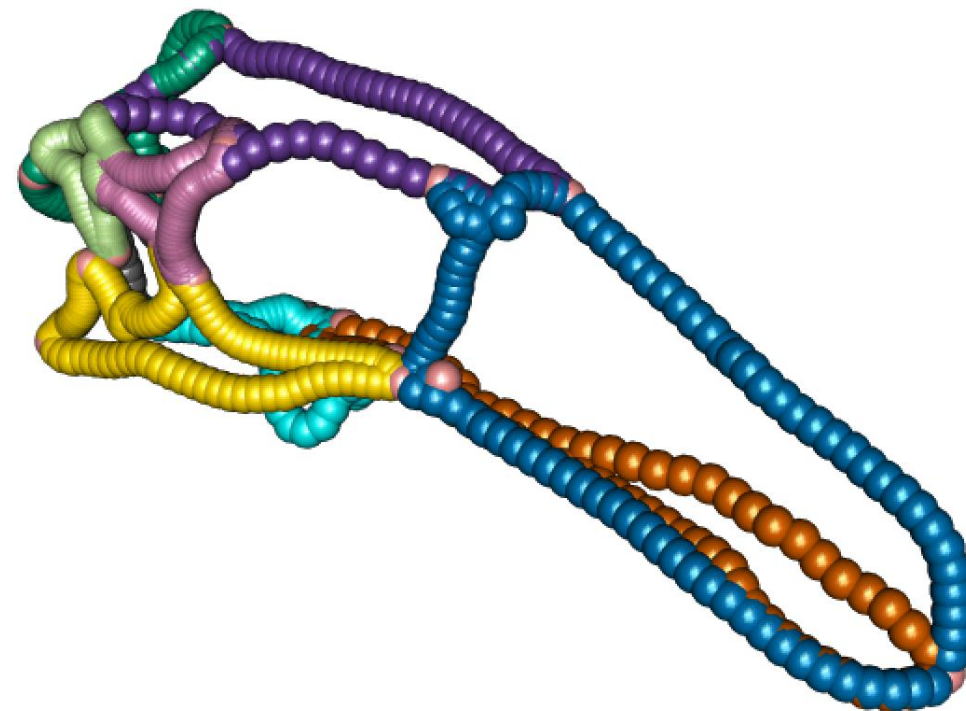
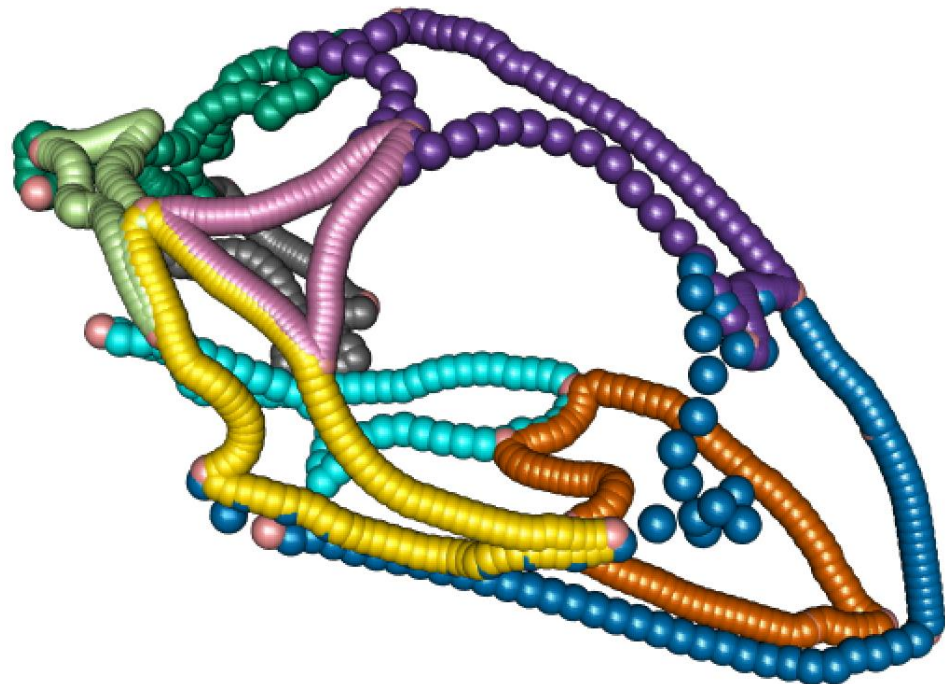
Dense Semi-landmarks allow
complex shapes to be compared



Dense Semi-landmarks allow
complex shapes to be compared



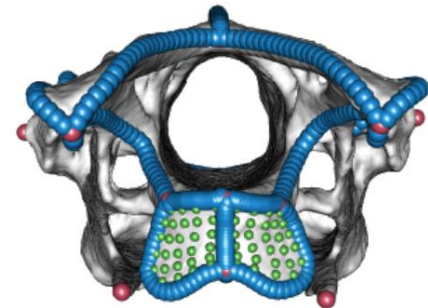
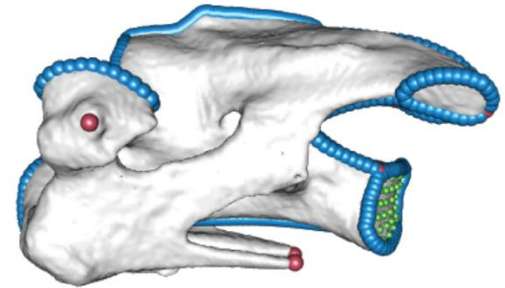
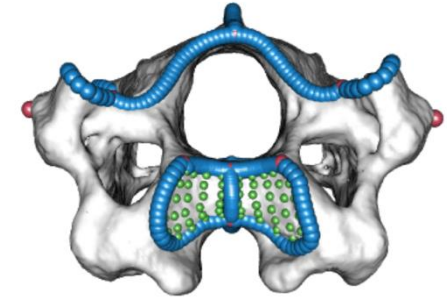




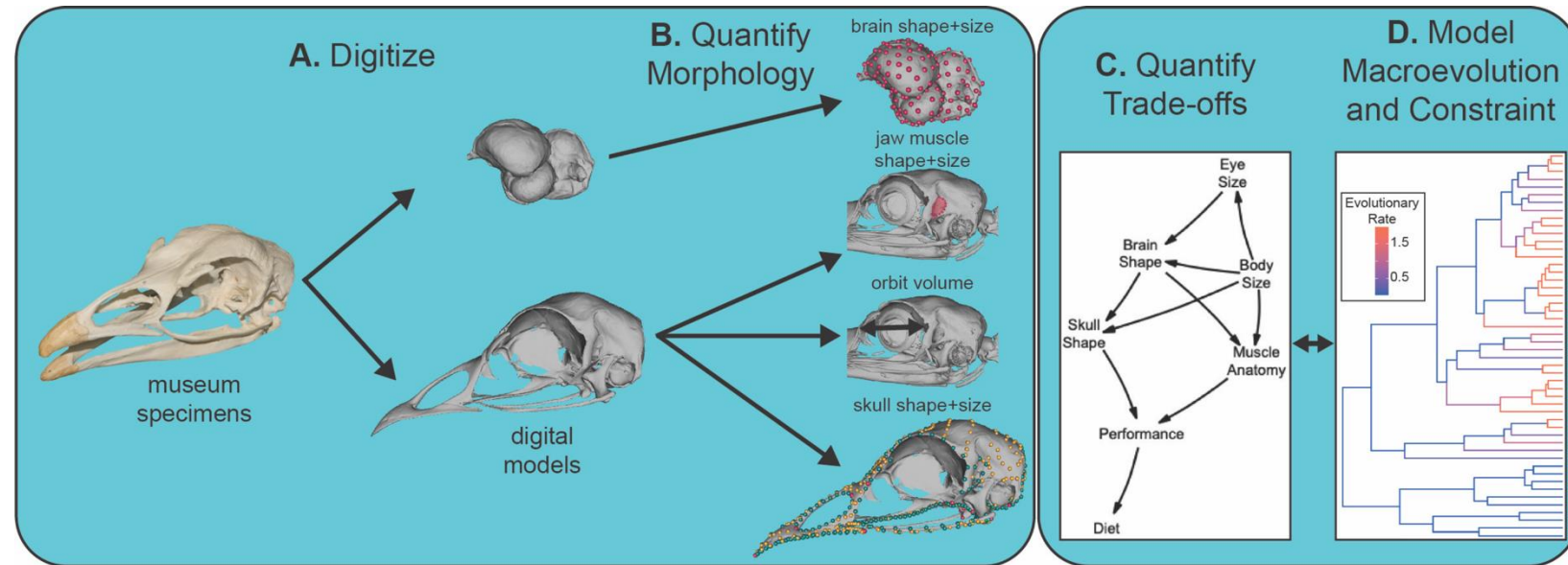
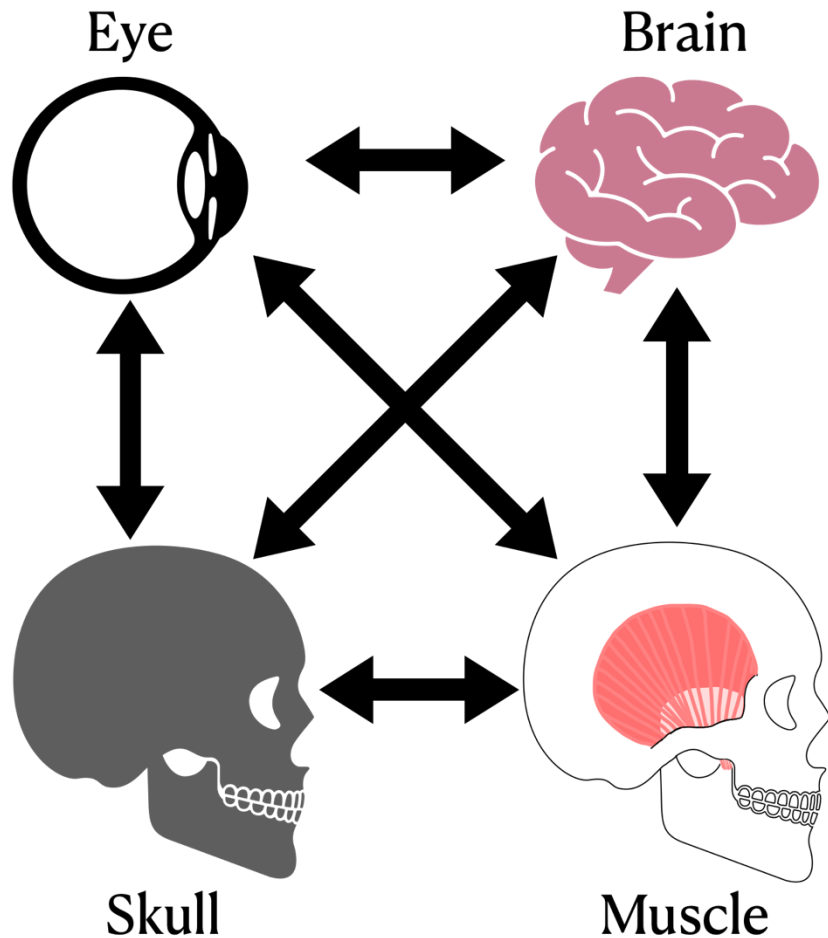
Trade-offs in vertebral evolution



Ryan Marek (postdoc)

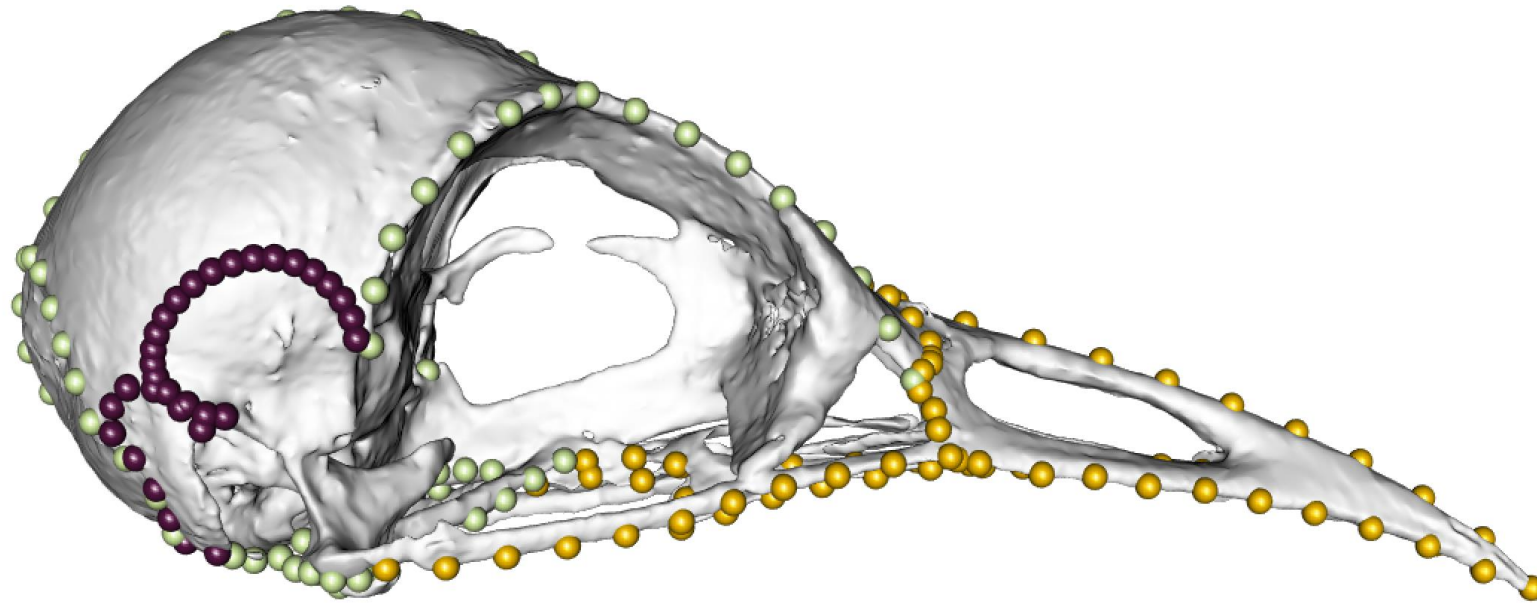


BRAIN-DRAIN: the consequences of encephalisation

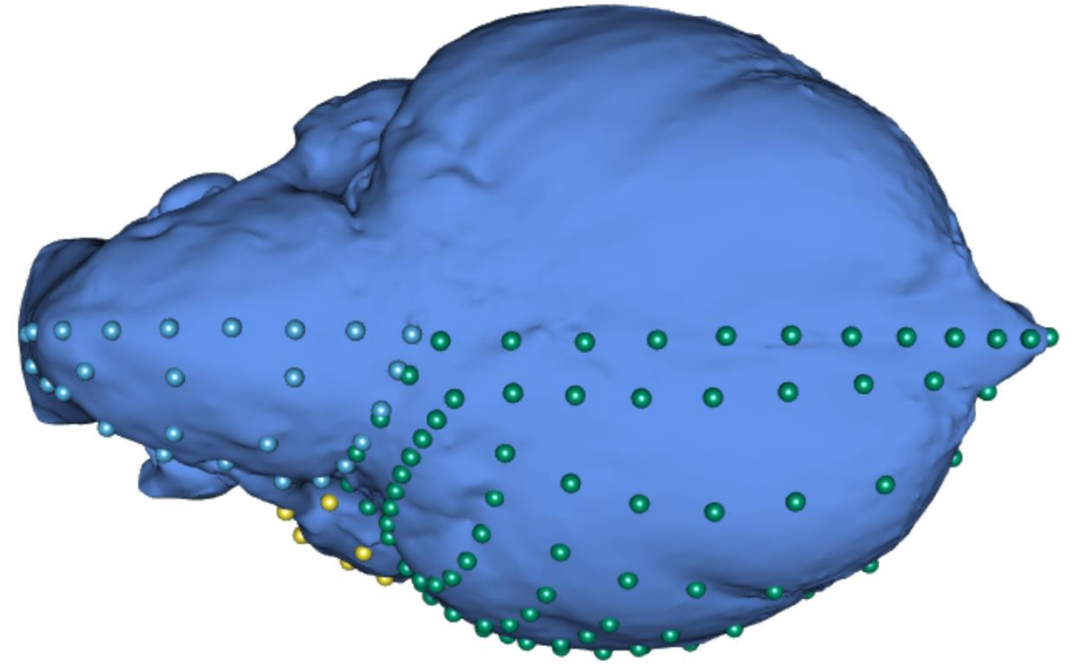
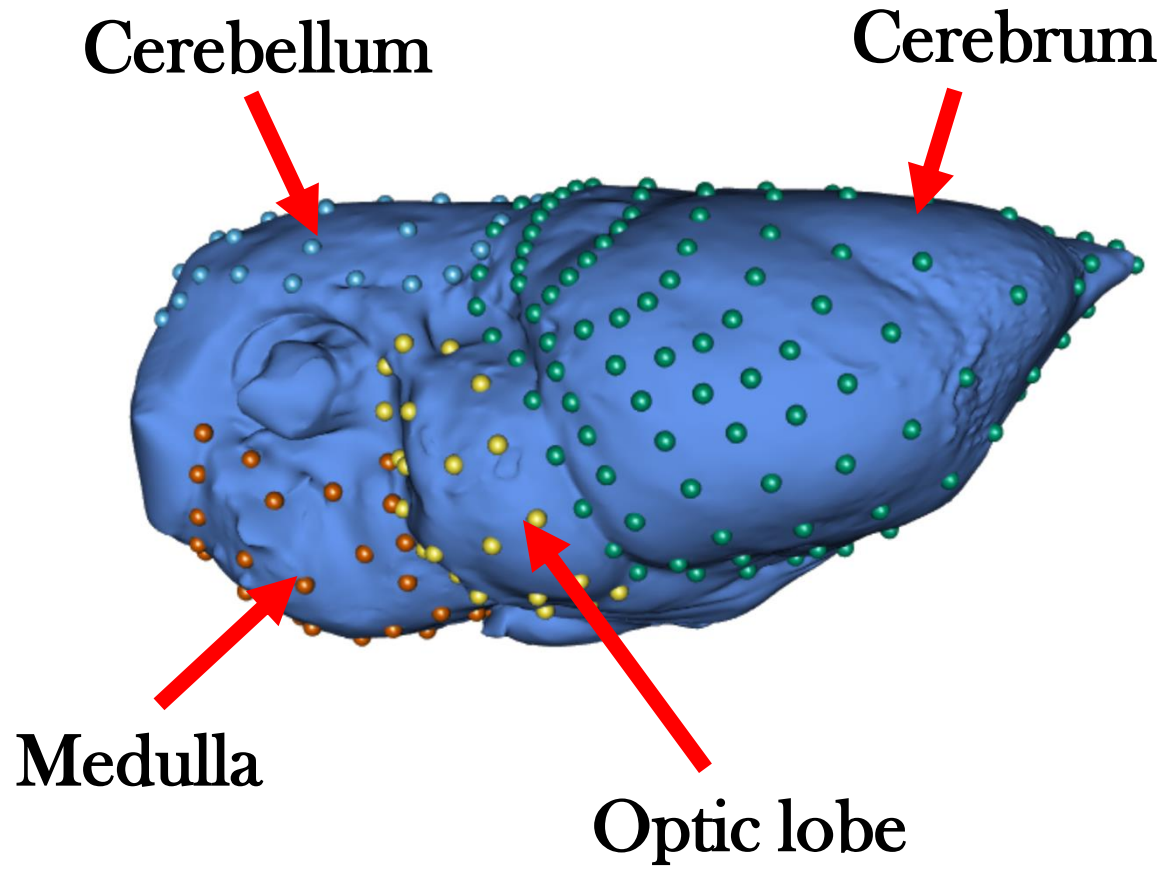


Skull landmarks

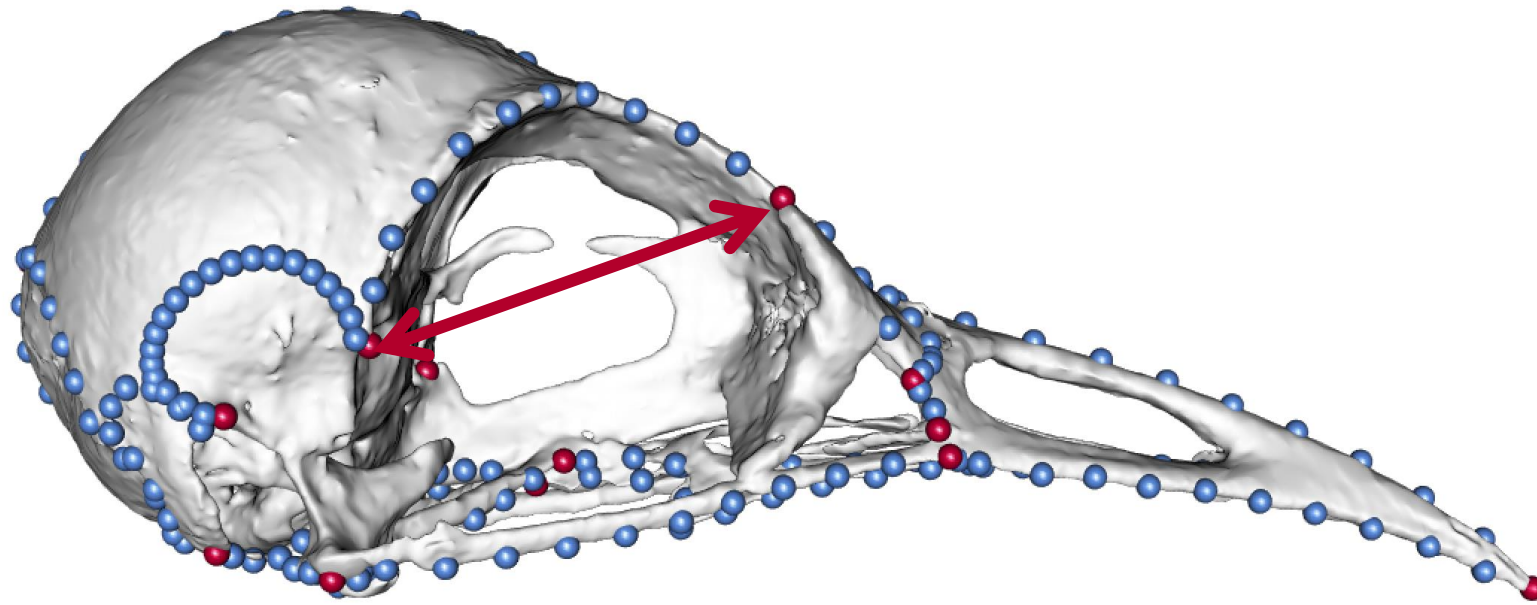
- Jaw muscle attachments
- Neurocranium
- “Rostrum”

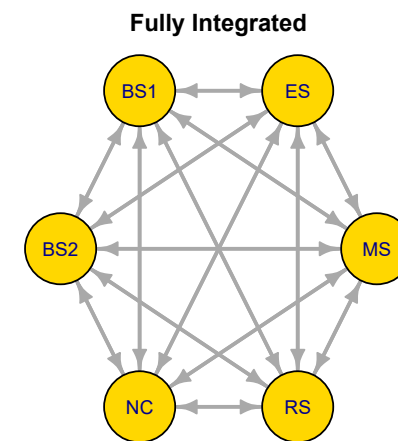
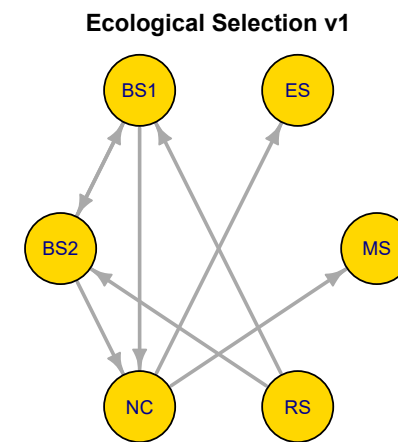
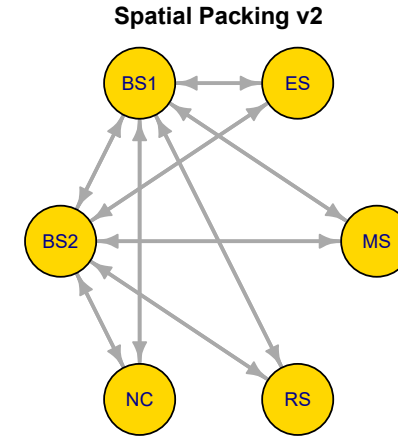
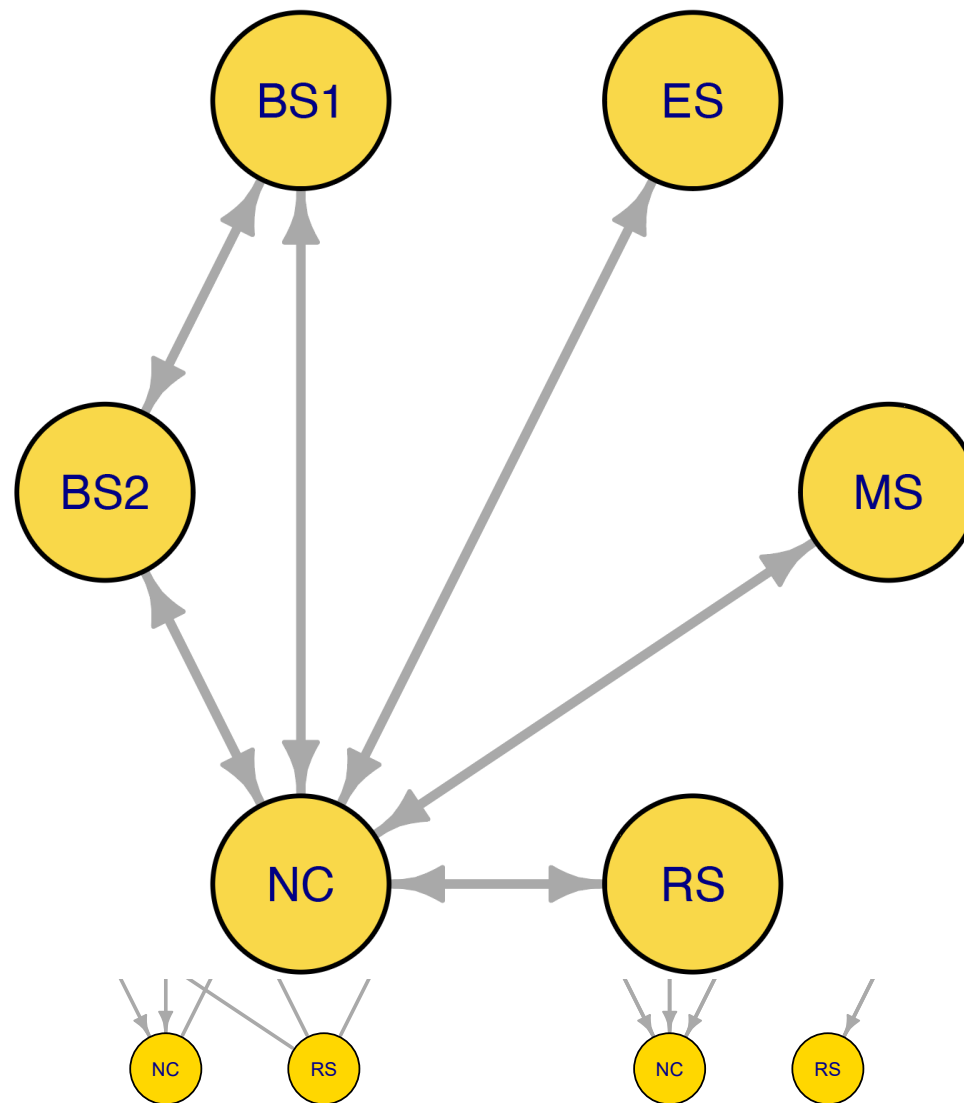
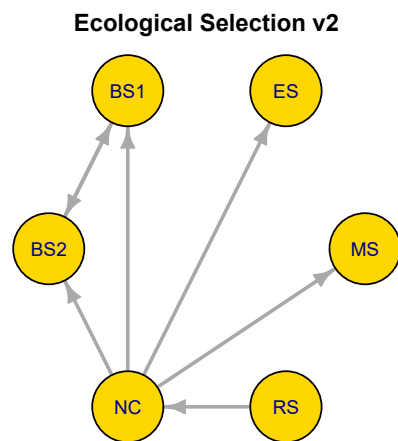
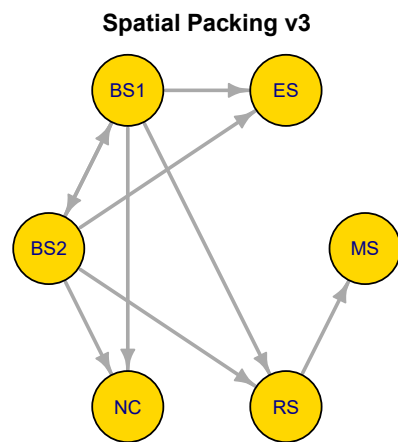
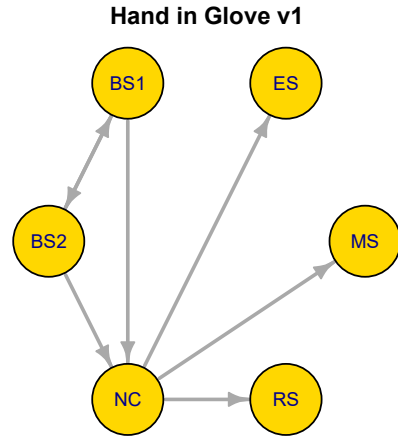


Endocast landmarks

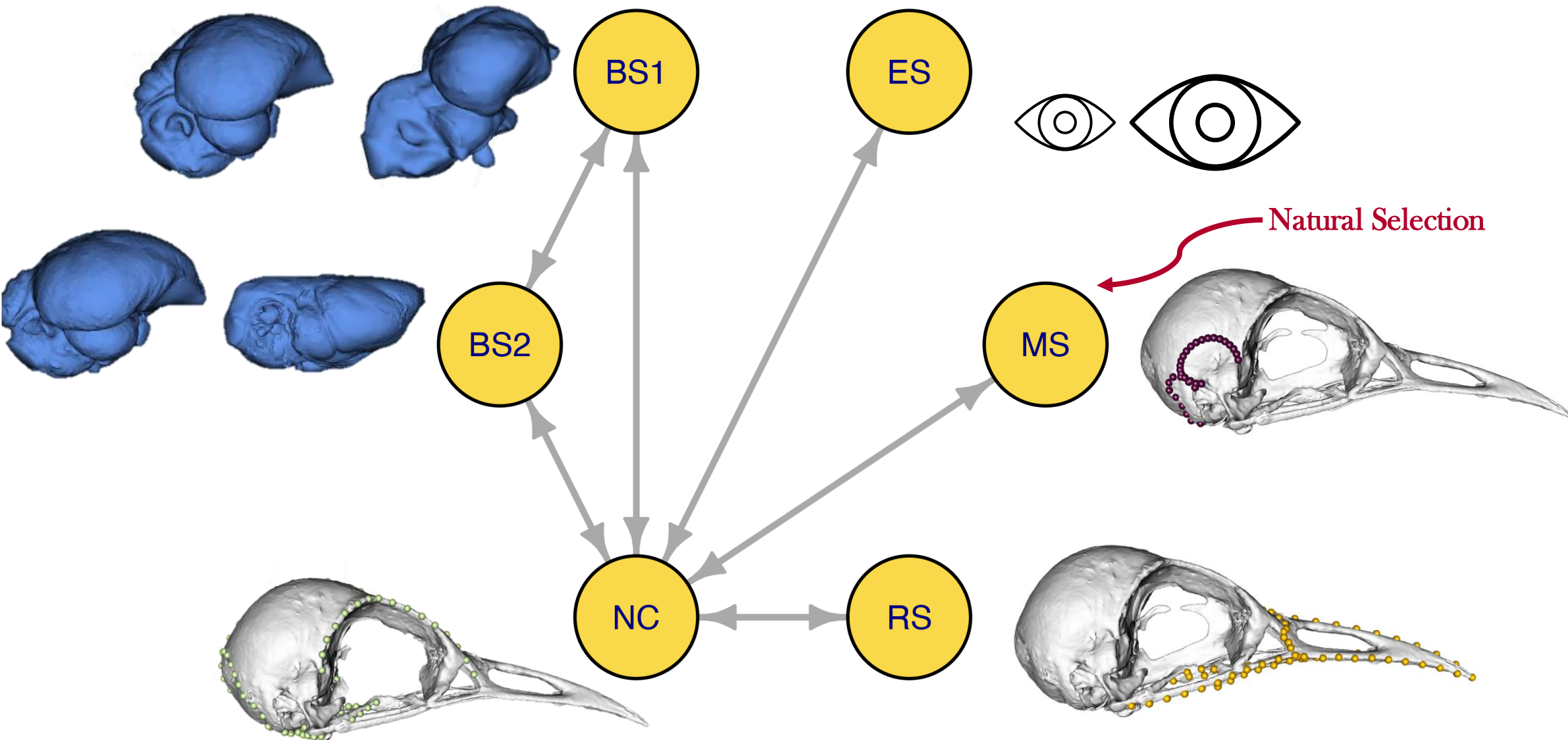


Relative Eye Size

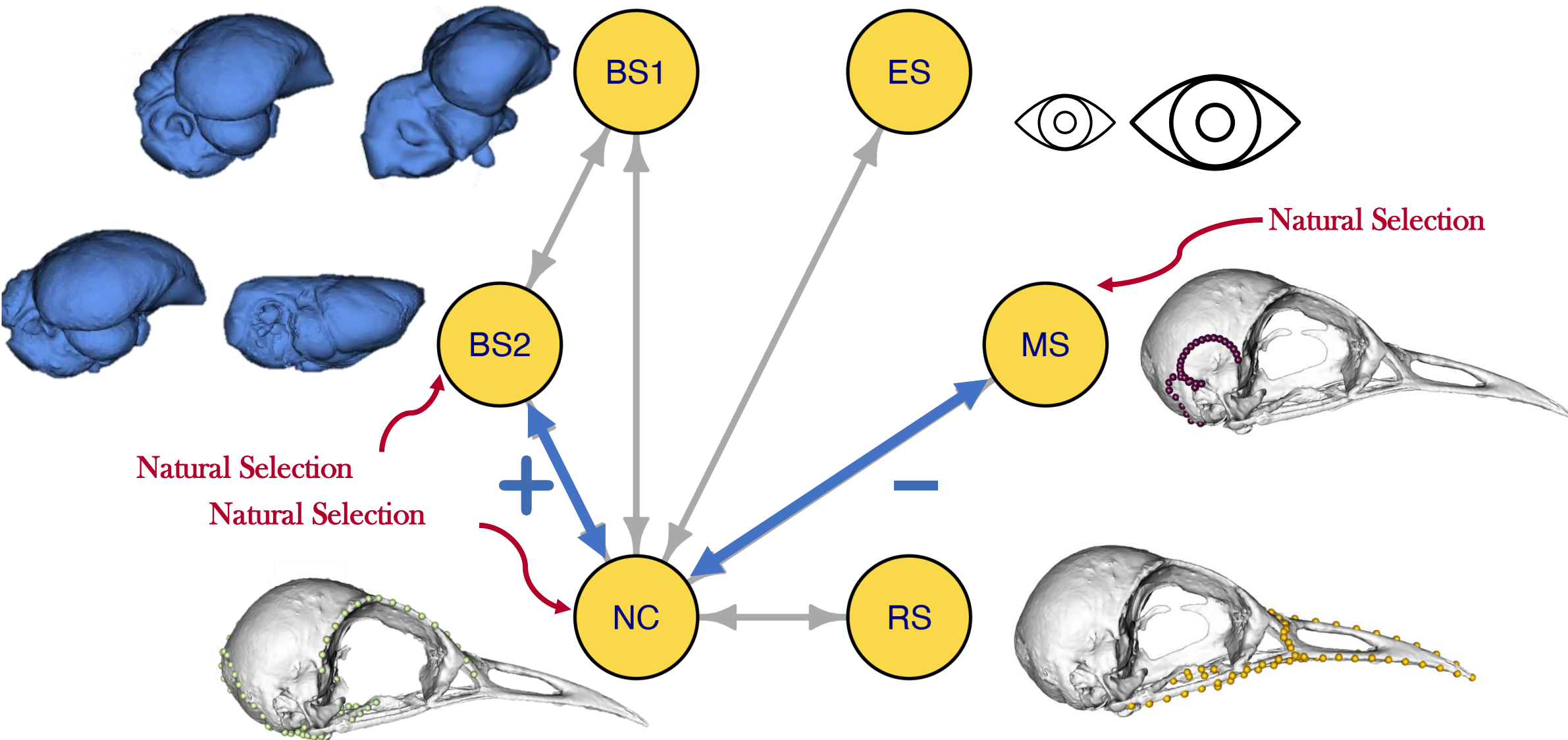




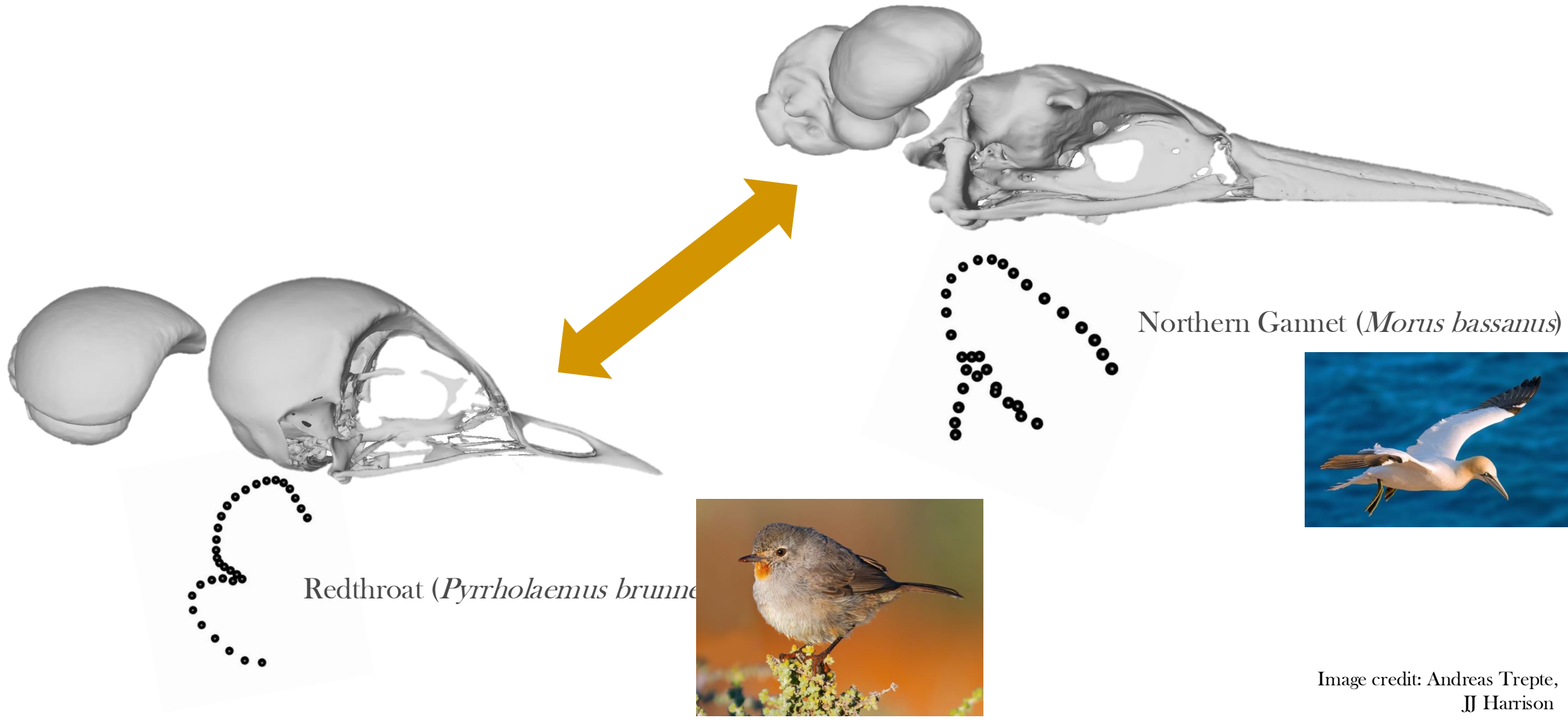
Hand in Glove v2



Hand in Glove v2



What does this trade-off look like?



Who are you?