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Doctor of Philosophy

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Image created in Earth Sciences
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Scanned Variation

Semi-Finalist

Current estimates suggest that one in every three species today is either threatened by, or considered at risk of, extinction. Despite such alarming statistics, and mounting evidence of a major biodiversity crisis currently taking place, our understanding of the factors that prevent species' extinction remains poor. The fossil record, which preserves and records numerous species throughout Earth's history, acts as a natural laboratory in which we can study species before, during, and after extinction events. One factor readily available in the fossil record is morphological variation, the extent to which a species or group of organisms varies in shape. My PhD research focuses on understanding the relationship between shape variation and species survivorship by determining if increased shape variation helps prevent species from going extinct in the fossil record. To answer this question, I laser scan 380 million year old fossils to develop landmark based 3D shape data. I then compare species' shape data and its variability across extinction events to determine if increased shape variation promotes survivorship. Understanding the effects of shape variation on species survivorship in the fossil record is important, as it will help better identify, monitor, and conserve species both today and in the future.