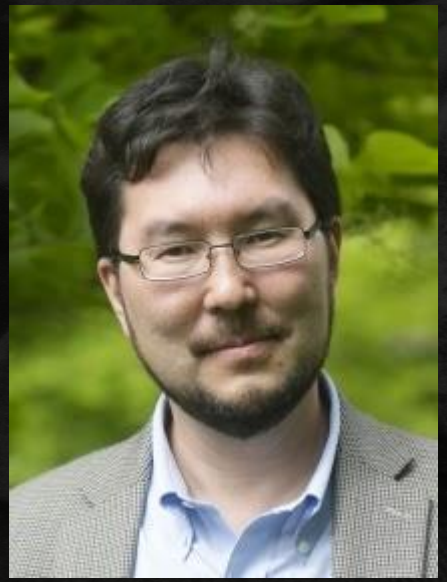
BALL STATE UNIVERSITY

The Mathematical Laws of Morphology and Biomechanics

PURDUE FORT WAYNE

Tuesday 9th November 2021 noon EST

Virtual Presentation: https://purdue.webex.com/meet/aselvite



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On growth and form of the animal face

Understanding the origins of morphological variation is one of the chief challenges to the modern biological sciences. Cranial diversity in vertebrates is a particularly inviting research topic as animal heads and faces show many dramatic and unique adaptive features which reflect their natural history. We aim to reveal developmental mechanisms underlying evolutionary processes that generate such morphological variation. To this purpose, we employ a synergistic combination of geometric morphometrics, biological shape modelling, comparative molecular embryology and functional experimentation to trace cranial evolution in reptiles, birds and mammals, some of the most charismatic animals on our planet. Our research is revealing how particular changes in developmental machinery can produce morphological alterations for natural selection to act upon, for example in generating adaptive radiations and morphological novelty.

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