

Abstract Submitted
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Multi-terrain locomotor interactions in flying snakes¹ ISAAC YEATON, GRANT BAUMGARDNER, SHANE ROSS, JOHN SOCHA, Virginia Tech — Arboreal snakes of the genus *Chrysopelea* are the only known snakes to glide. To execute aerial locomotion, a snake uses one of several stereotyped jumps from a tree into the air, while simultaneously flattening its body into an aerodynamically favorable shape. Large amplitude traveling waves are propagated posteriorly during the stable glide, while landing involves body wrapping, passive body compression, and energy absorption through compliance in the landing substrate to dissipate the accumulated kinetic energy from the glide. In all of these locomotor events, from interacting with cylindrical branches, falling through the air, grasping compliant tree branches and leaves, to landing on solid ground, snakes appropriate the same body morphology and perhaps the same basic neural mechanisms. Here we discuss our use of computational models and animal experiments to understand how flying snakes interact with and locomote on and through multiple media, potentially providing principles for legless locomotor designs.

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