

Abstract Submitted
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Sidewinding snakes on sand¹ HAMIDREZA MARVI, DANTE DIMENICHI, ROBERT CHRYSTAL, Georgia Institute of Technology, JOSEPH MENDELSON, Zoo Atlanta and Georgia Institute of Technology, DANIEL GOLDMAN, DAVID HU, Georgia Institute of Technology, GEORGIA TECH AND ZOO ATLANTA COLLABORATION — Desert snakes such as the rattlesnake *Crotalus cerastes* propel themselves over sand using sidewinding, a mode of locomotion relying upon helical traveling waves. While sidewinding on hard ground has been described, the mechanics of movement on more natural substrates such as granular media remain poorly understood. In this experimental study, we use 3-D high speed video to characterize the motion of a sidewinder rattlesnake as it moves on a granular bed. We study the movement both on natural desert sand and in an air-fluidized bed trackway which we use to challenge the animal on different compactions of granular media. Particular attention is paid to rationalizing the snake's thrust on this media using friction and normal forces on the piles of sand created by the snake's body.

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