

# Researchers first to show hinge morphology of click beetle's latch mechanism

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Aimy Wissa, assistant professor of mechanical science and engineering (MechSE) at Illinois, leads an interdisciplinary research team to study click beetles to inspire more agile robots. The team, which includes MechSE Assistant Professor Alison Dunn and Dr. Marianne Alleyne, a research scientist in the Department of Entomology, recently presented their ongoing and novel work on the quick release mechanism of click beetles at the 2019 Society for Integrative and Comparative Biology (SICB) Annual Meeting.

Ophelia Bolmin, a [graduate student](#) in Wissa's Bio-inspired Adaptive Morphology (BAM) Lab, presented novel synchrotron X-ray footage that showed the internal latch mechanism of the click beetle, and demonstrated for the first time to the [scientific community](#) how the hinge morphology and mechanics enable this unique clicking mechanism. The presentation, "The click beetle latch mechanism: An in-vivo study using synchrotron X-rays," was part of an invited symposium on mechanisms of energy flow in organismal movement.

This work builds on research that was initiated by the Illinois team nearly two years ago, detailing the click beetles' legless self-righting jumping mechanism. The team already built prototypes of a hinge-like spring-loaded device that are being incorporated into a robot.

Rather minimal research had been performed on the click beetle's click mechanism in the past, and the Illinois team is the first to explore the insect within the field of bio-inspiration—using inspiration from nature

for innovative engineered designs. They continue to be at the forefront of this research, and further studies are scheduled to be published in coming months.

Provided by University of Illinois at Urbana-Champaign

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