BEHAVIORAL METHODS

Behavior tracking cuts deep

Nat. Neurosci. **21**, 1281–1289 (2018)

DeeperCut, a pose-detecting machine learning algorithm designed for the human body, has gone to the animals. To make analyzing behavior less tedious, the creators of DeepLabCut adapted a subset of the original algorithm's deep neural network to track user-defined body parts from video recordings of any moving animal, without requiring markers on the animals themselves.

In their Technical Report published in *Nature Neuroscience*, the team presents DeepLabCut's ability to track the noses and paws of mice as they sniff an odor and grasp a joystick and to follow points on a fruit fly moving around a small cubicle. Humans still need to label the initial training set to teach the algorithm what it's looking for, but DeepLabCut can transfer what it's taught to additional behaviors from there with minimal additional input. The code for DeepLabCut can be found on GitHub. *EPN*

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BIOLOGICAL MODELS

Aquatic acoustic trauma

eNeuro 2018; https://doi.org/10.1523/ENEURO.0206-18.2018

The lateral lines that enable fish to detect changes in the water around them are lined with hair cells, akin to the structures in the human ear that enable hearing. Zebrafish have been used to study hair cell death, and thus model hearing loss, but through chemical means of destroying the hair cells in their lateral lines. A new paper presents a larval zebrafish model of lateral line hair cell death brought about by acoustic, rather than chemical, trauma.

The process uses a cavitation device that creates air bubbles in response to noise stimulus from a small hydrophone. The size and timing of the acoustic bubbles can then be tuned to change the extent of hair cell damage. *EPN*

https://doi.org/10.1038/s41684-018-0165-x

MICROBIOME

The fly's stable symbionts

PLoS Biol. **6**, e2005710 (2018).

The microbes that live in the *Drosophila* gut are known to influence aspects of its physiology, but the relationship was thought to be transitory—the bacteria had to be constantly re-ingested. But a new study suggests there might be some stable symbionts after all.

The researchers first tested for overall community stability in lab-reared and wild-caught flies. Flies spent either 10 days with the same food source (to encourage re-ingestion of bacteria) or were transferred twice per day to clean vials with fresh food (to avoid it). Lab flies needed re-ingestion to maintain the overall concentration of gut bacteria, but wild flies…not so much. But the composition of that wild community in the latter protocol was in flux. By Day 10, the wild fly's bacterial diversity was reduced to just a few species, which could then stably exist in germ-free lab flies too. *EPN*

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EVOLUTION

How the sparrow got its house

Proc. R. Soc. B. **285**, 20181246 (2018).

House sparrows turn up alongside human populations just about everywhere. Even though they aren't a domesticated species, they've adapted well to their lives alongside people—a new sequencing effort sheds some evolutionary light on why.

The researchers sampled DNA from European house sparrows and three of their close wild cousins. The birds likely diverged from one another about 11,000 years ago, and some unique differences in the house sparrow jumped out to the researchers. These birds have the genetic underpinnings for larger beaks and thicker skulls, along with the ability to digest amylose starches, a change also observed in domestic dogs. The results suggest house sparrows evolved into their current niche as humans transitioned to agrarian societies. *EPN*

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