

Seeing through the eyes of a crab—new research provides insight into the visual world of a crustacean

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A male crab *Neohelice granulata*. The two widely separated eyes are at the tip of movable eyestalks. Within the eyestalks are the optic lobes and other brain centers where binocular motions-sensitive neurons were found. Credit: Daniela Prina

Crabs combine the input from their two eyes early on in their brain's visual pathway to track a moving object, finds new research published in *JNeurosci*. This study of adult male crabs from Argentina's Atlantic coast provides insight into the visual world of a crustacean.

The widely spaced eyes and visually guided behaviors of the crab *Neohelice granulata* suggest this highly social predator may compute visual parameters of moving targets by combining input from both eyes, but it is unclear where and how the two sources of visual information are merged and processed.

By manipulating the animals' visual field and recording the activity of motion-sensitive lobula giant neurons while a moving bar was presented on computer screens, Daniel Tomsic and colleagues demonstrate that these cells perform complex integrations of [visual information](#) from both eyes. Such binocular visual processing may be important for the species' ability to capture prey and interact with other [crabs](#). The study shows the amenability of these animals for exploring neurocomputations underlying binocular behavioral tasks.



A group of *Neohelice* crabs in their natural habitat. On the right of the picture there is a submerged crab, note the periscope like way of using the eyestalks.
Credit: Daniela Prina

More information: Binocular neuronal processing of object motion in an arthropod, *JNeurosci* (2018). [DOI: 10.1523/JNEUROSCI.3641-17.2018](https://doi.org/10.1523/JNEUROSCI.3641-17.2018)

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