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A bio-inspired celestial compass for a hexapod walking robot in outdoor environment

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Most insects like desert ants and bees use the polarization pattern of skylight to get their orientation [1]. The skylight is linearly polarized and the direction of polarization remains slightly constant within short times.

The polarized light detection in insects

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Variable angular step resolution of the sensor (max res is 0.95°)

Hong reliability [3,4].

Even under poor weather conditions, these results suggest interesting precision to make the optical compass suitable for field robotics [3,4].

References