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Can we measure the three-dimensional orientation of *Vorticella* from two-dimensional videos? LUKAS KAROLY, RACHEL PEPPER, University of Puget Sound — *Vorticella* are aquatic suspension feeding microorganisms that live attached to surfaces and generate a feeding flow to draw in their food. They are crucial players in aquatic ecosystems, eating bacteria and debris as well as supporting larger aquatic organisms. To evaluate the impact of *Vorticella* in their environments, as well as in practical applications like waste water treatment, it is important to understand *Vorticella* feeding rates. Previous work has shown that the orientation of *Vorticella* relative to the surface of attachment affects feeding flow and feeding rates. *Vorticella* cell body orientation is defined by the polar angle, which is measured from the vertical axis, and the azimuthal angle. Previous experiments have observed *Vorticella* using a horizontal microscope from which the polar angle was directly measured. The azimuthal angle was inferred as a function of the projected cell body length compared to a maximum measured cell body length. However, it is unknown how accurately this technique determines the azimuthal angle. We recorded time-lapse videos of *Vorticella* simultaneously from the side and the top. We then compared the calculated azimuthal angle from the side view to a direct measurement from the top view. We report the error in the calculated azimuthal angle as a function of the organism orientation.

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