

Supplemental Materials

Movie S1. A typical head-down push swimming near the surface, related to Fig. 5A.

Video was recorded at frame rate of 55 fps and played at 20 fps.

Movie S2. A typical head-up push swimming near the surface, related to Fig. 5B.

Video was recorded at frame rate of 55 fps and played at 20 fps.

Movie S3. A typical parallel push swimming near the surface, related to Fig. 5C.

Video was recorded at frame rate of 55 fps and played at 20 fps.

Movie S4. A typical head-down pull swimming near the surface, related to Fig. 5D.

Video was recorded at frame rate of 55 fps and played at 20 fps.

Movie S5. A typical head-up pull swimming near the surface, related to Fig. 5E.

Video was recorded at frame rate of 55 fps and played at 20 fps.

Movie S6. A typical parallel pull swimming near the surface, related to Fig. 5F. Video

was recorded at frame rate of 55 fps and played at 20 fps.

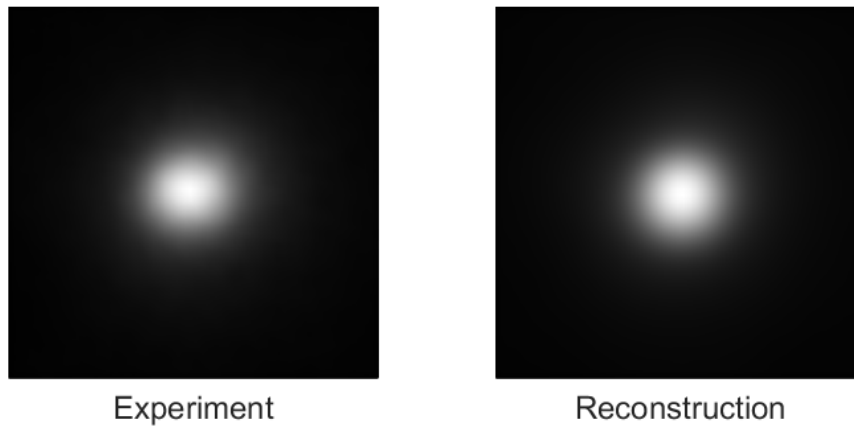


Fig. S1. The TIRF image of a 1- μm -diameter fluorescent bead (left) compared to the reconstructed image using the measured PSF and the model of a 1- μm -diameter bead (right). The size of each image is $3.9 \times 3.9 \mu\text{m}$, and the correlation coefficient of the two images is 0.991.

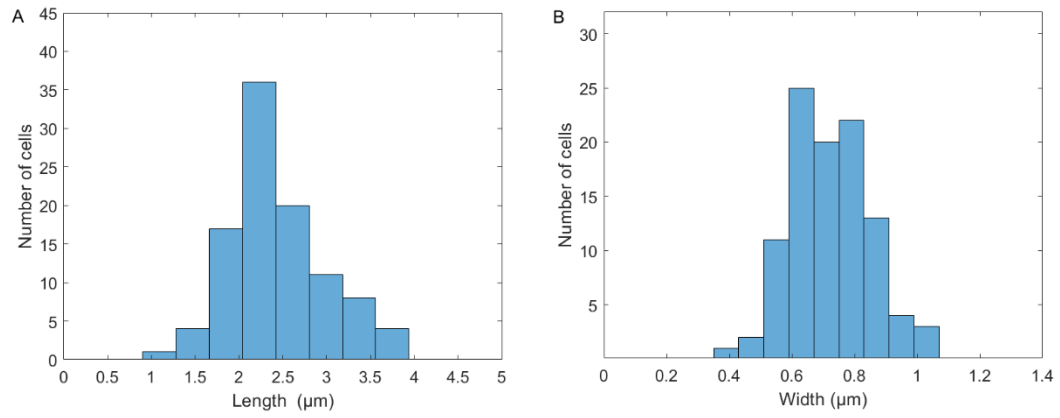


Fig. S2. The length (A) and width (B) distributions of 101 PAO1 cells.

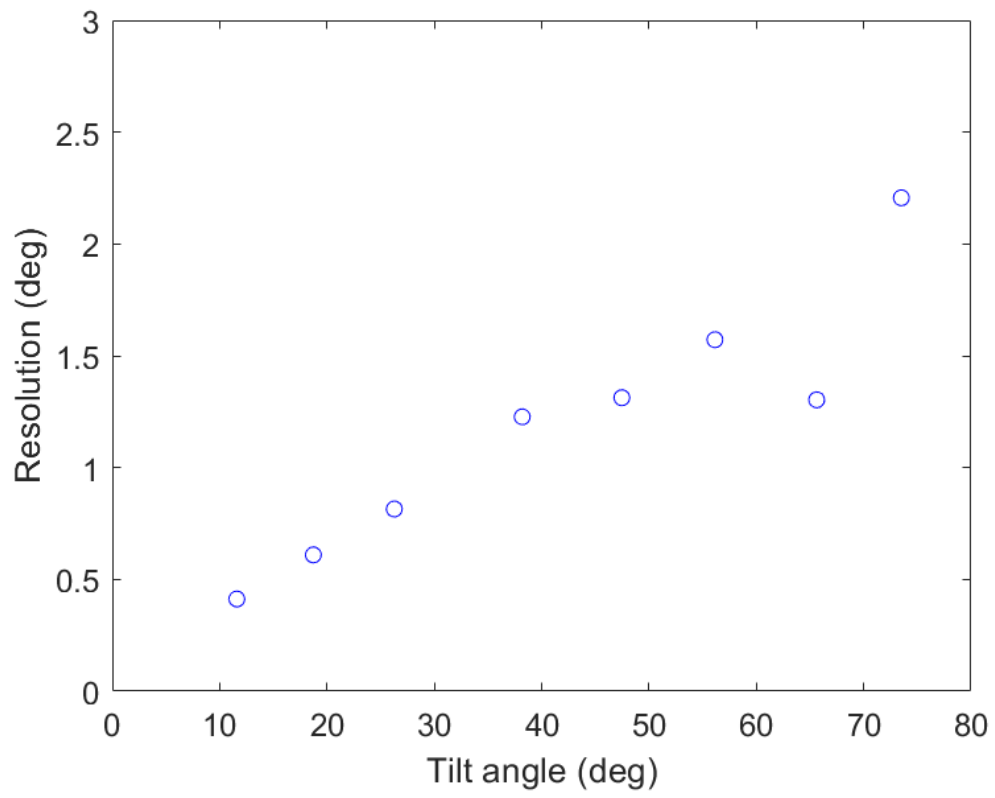


Fig. S3. The angle resolution at various tile angles.