

# A bee in a corridor: centering and wall-following

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► Bees do not systematically center as previously reported in narrow corridors

(Kirchner and Srinivasan, 1989)

► Balancing right and left optic flows does not account for the **wall-following** behaviour observed here

(Serres et al., Naturwissenschaften, final revision, 2008)

► The bee's behaviour is well accounted for by **two interdependent lateral optic flow regulators**

(Serres et al., Auto. Robots, 2008)

## • Experimental procedure

► Digital CMOS camera: *Prosilica™ EC1280*

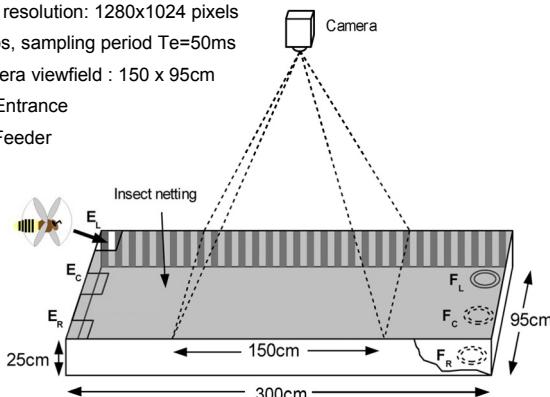
► High resolution: 1280x1024 pixels

► 20 fps, sampling period  $T_e=50\text{ms}$

► Camera viewfield : 150 x 95cm

► E = Entrance

► F = Feeder



## • Image processing and time-lapse photography

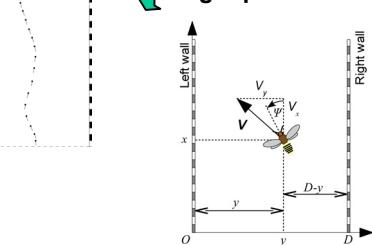
Stacked Images



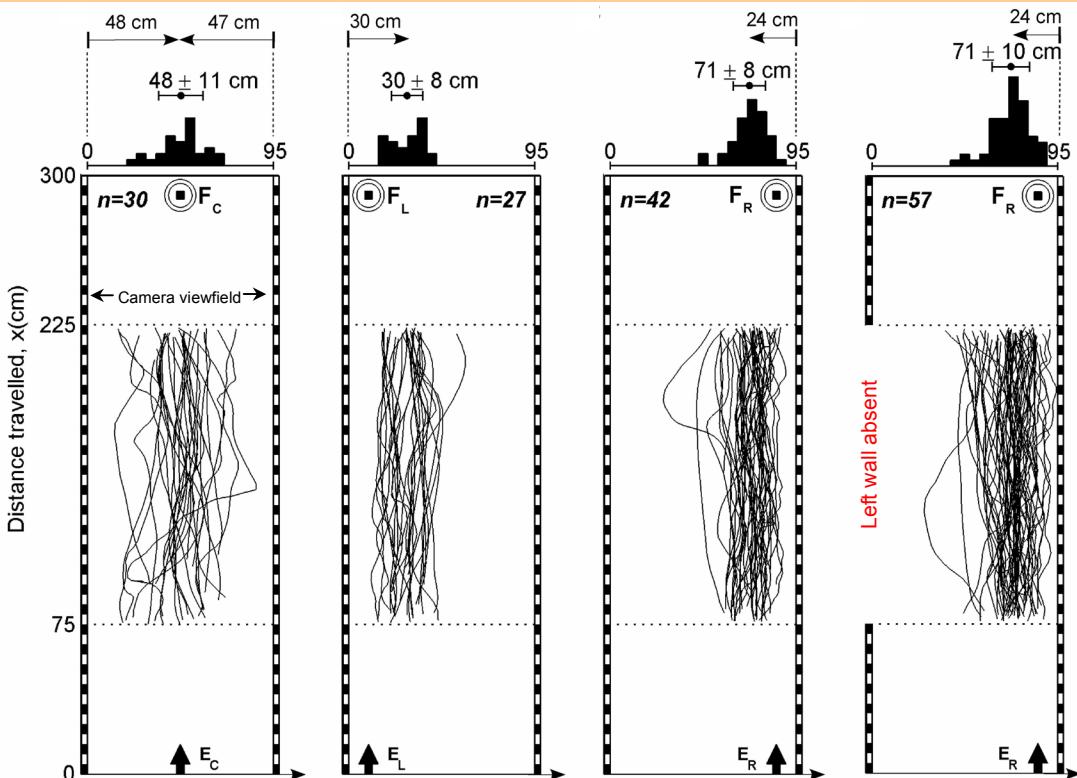
Manual thresholding and cleaning

Automatic reconstruction

Flight parameters



## • Experimental results: to center or not to center ?



Left Optic Flow (°/s)	$148 \pm 54$	$235 \pm 80$	$73 \pm 25$	$4 \pm 1$
Right Optic Flow (°/s)	$151 \pm 68$	$106 \pm 39$	$226 \pm 68$	$265 \pm 116$