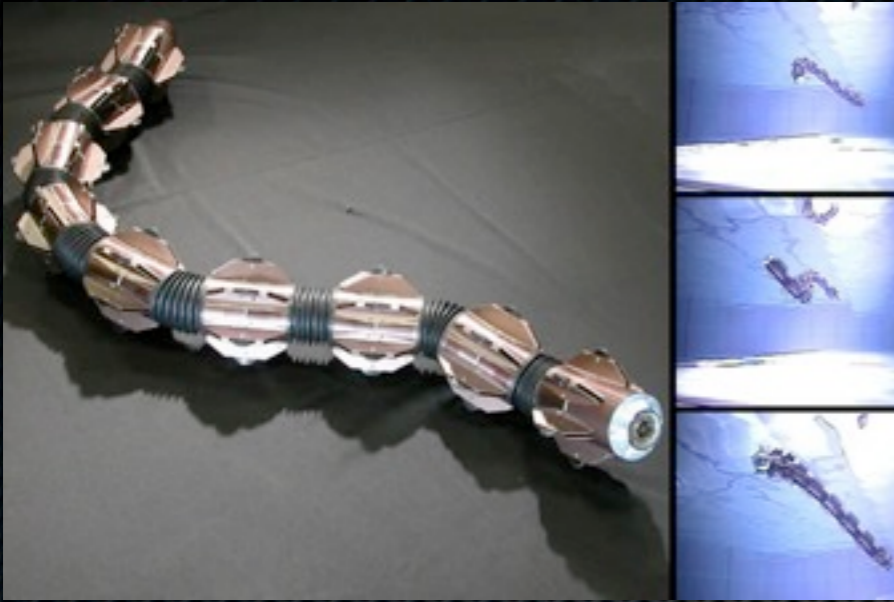


# De l'animal au robot et *vice versa*

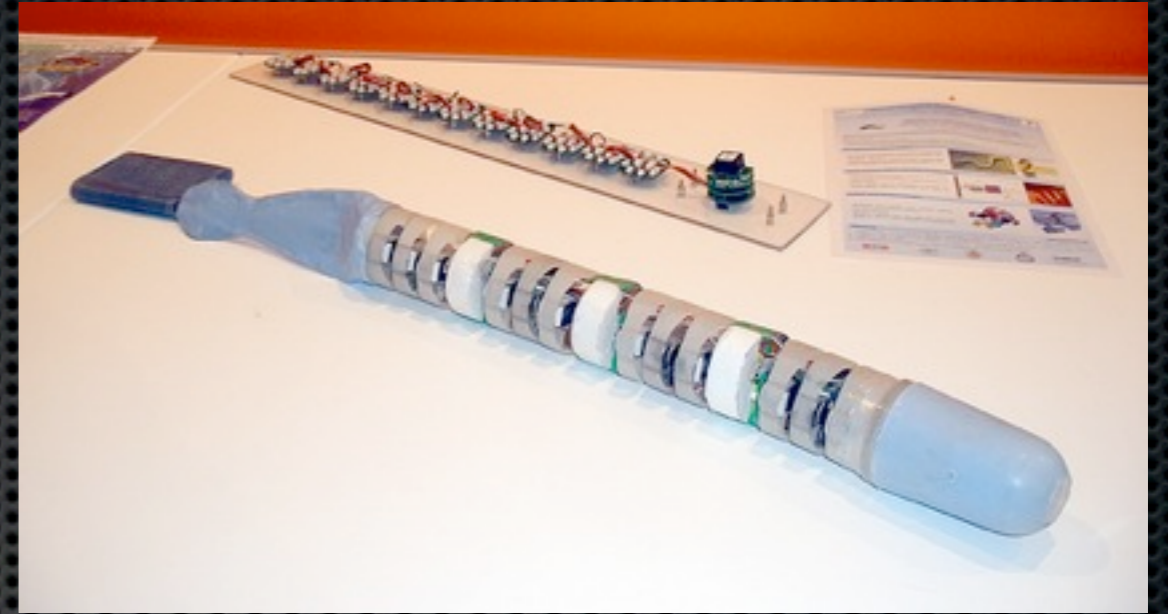
Stéphane Viollet  
Equipe Biorobotique

Institut des Sciences du Mouvement,  
Marseille

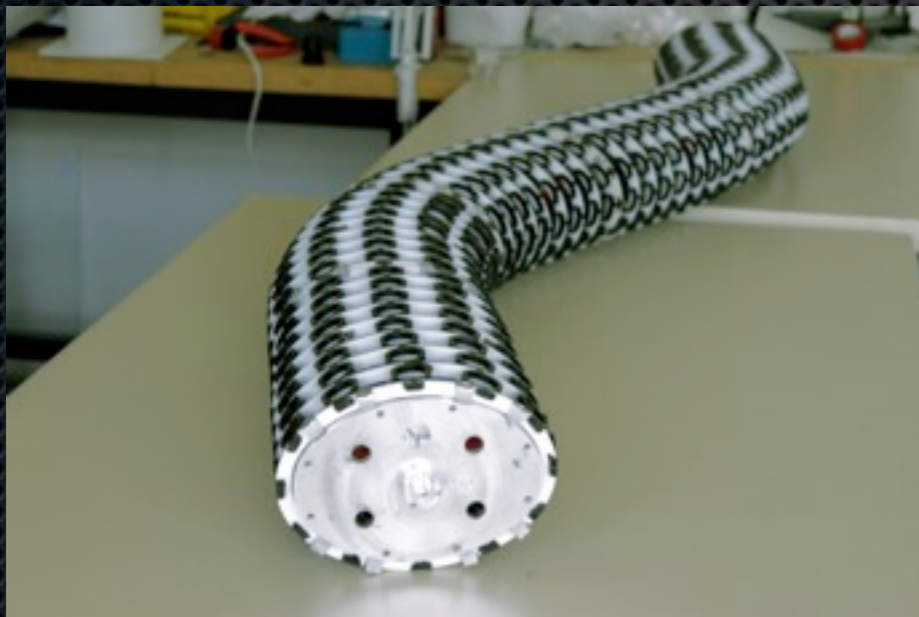
# Nage



ACM-R5 (Hirose Lab)



Lampetra (Europe)

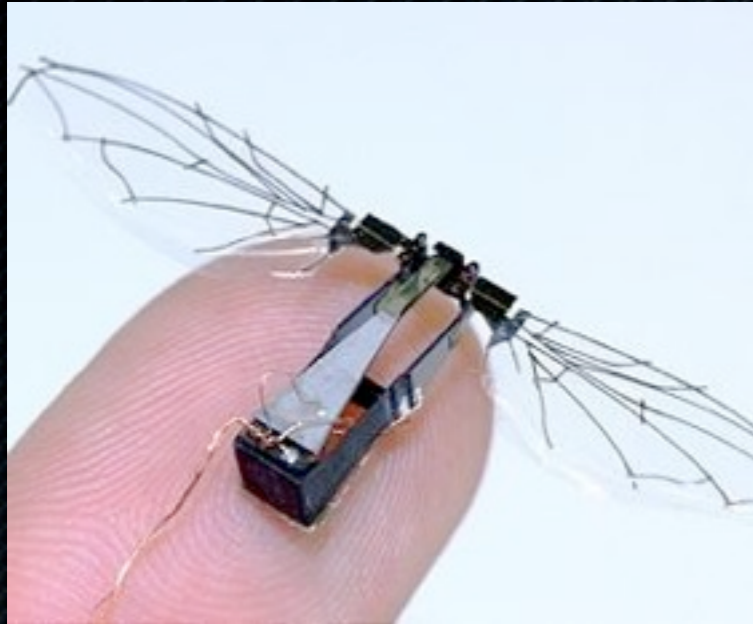


Anguille (EMN, Irrcyn)



Salamandre (EPFL)

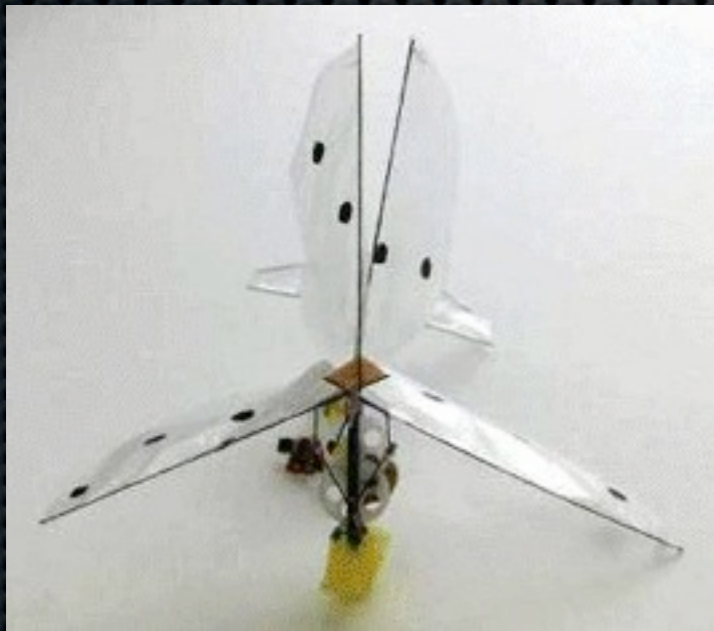
# Vol battu



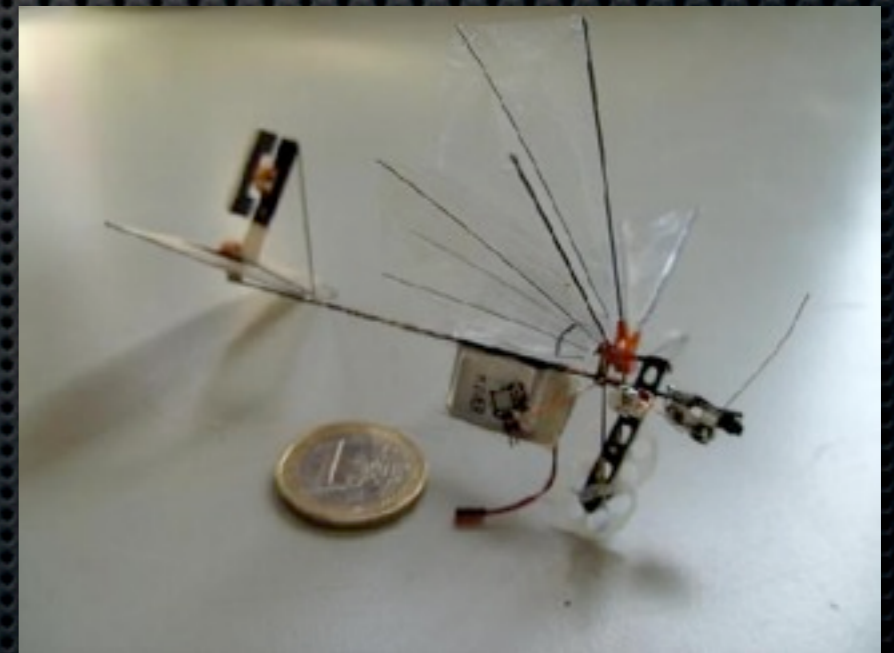
Dragonfly (Harvard)



Hummingbird (Aeroenvironment)



Ornithopter (Chiba)

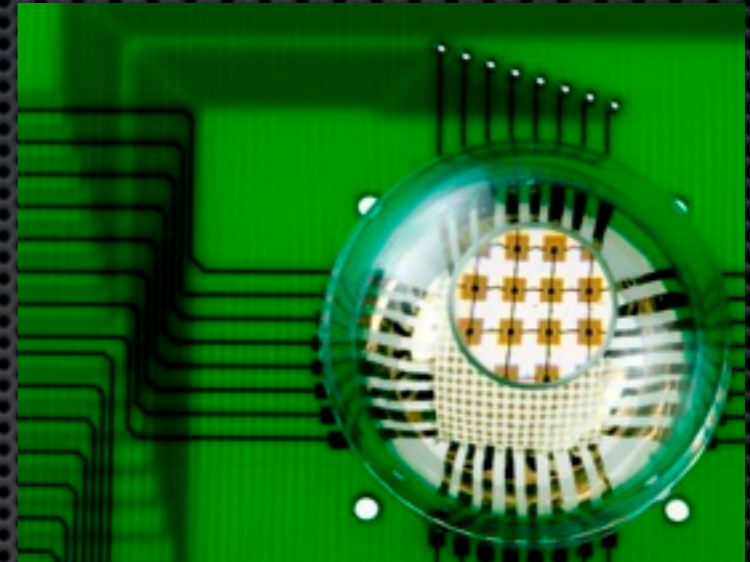


Delfly (Delft)

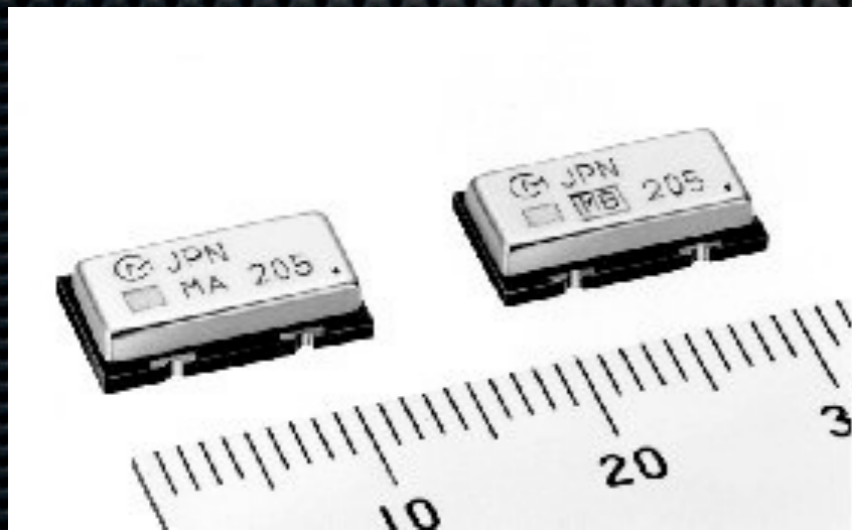
# Perception



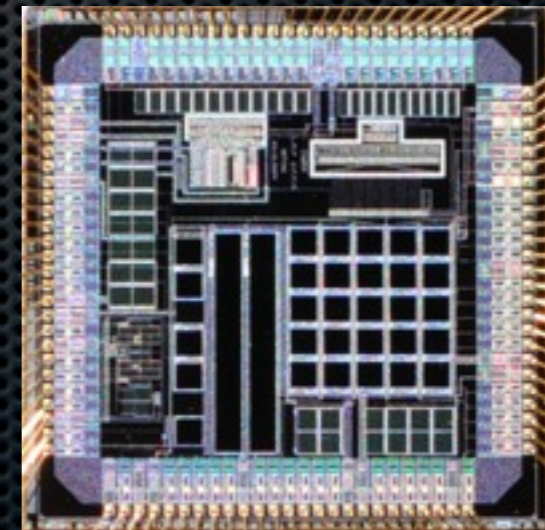
Chauve souris (R. Mueller)



Rétine souple (Illinois)



Gyromètre (Murata)



Capteur flux optique  
Expert et al., J. Field Robotics, 2011

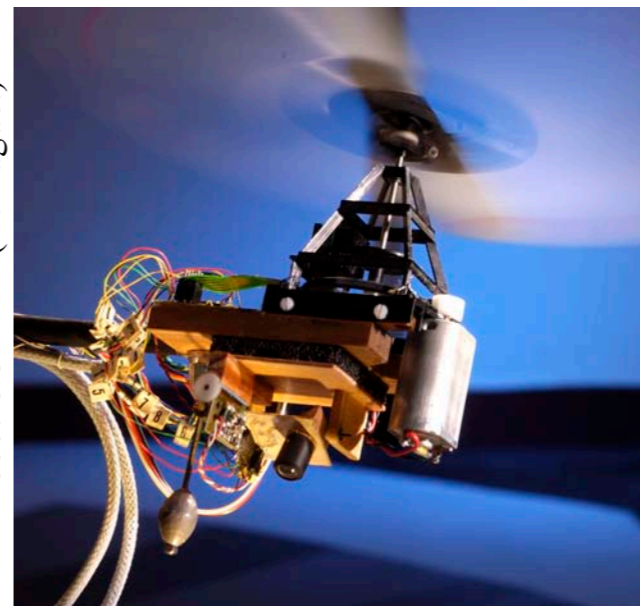
# De l'animal au robot et *vice versa*

**Biologie**

(Photo N. Franceschini)



Robot OCTAVE (H. Raguez)



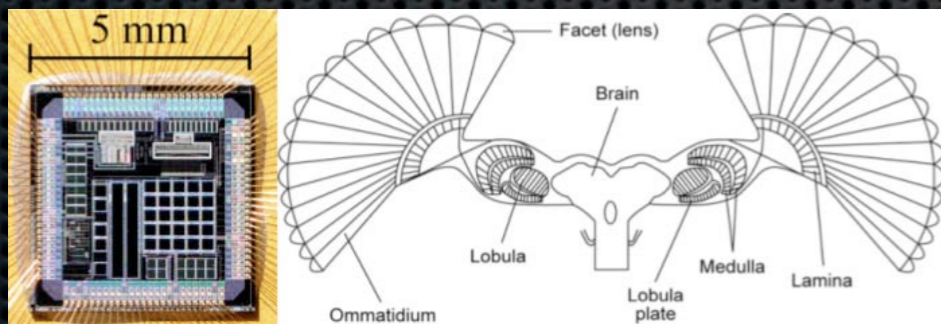
**Robotique**



Flux optique et navigation en environnement complexe.



Mouvements oculaires et stabilisation visuelle

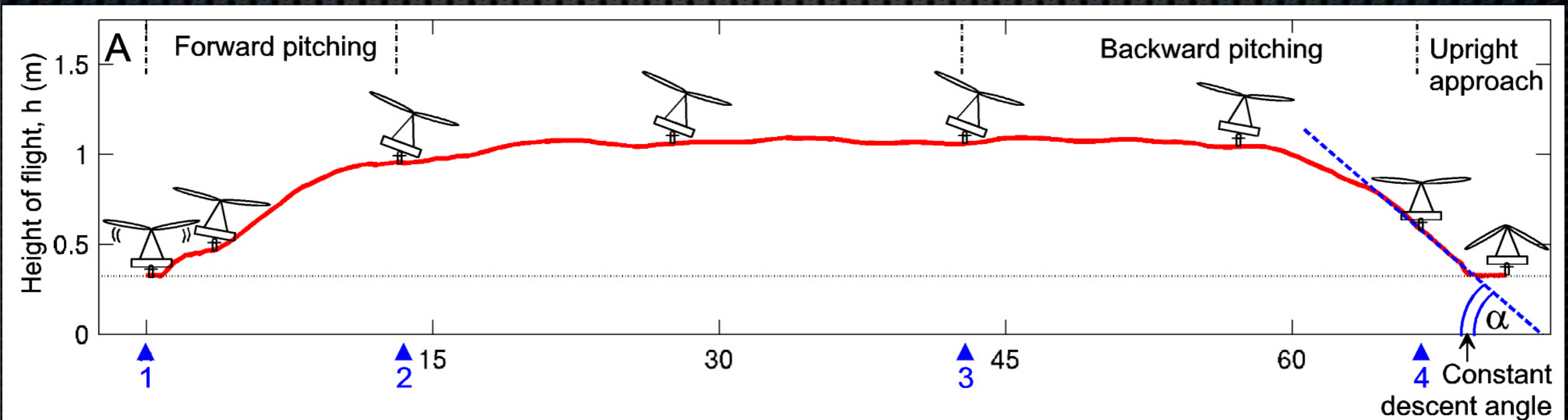


Intégration capteur et systèmes de traitement.



lundi 18 juillet 2011

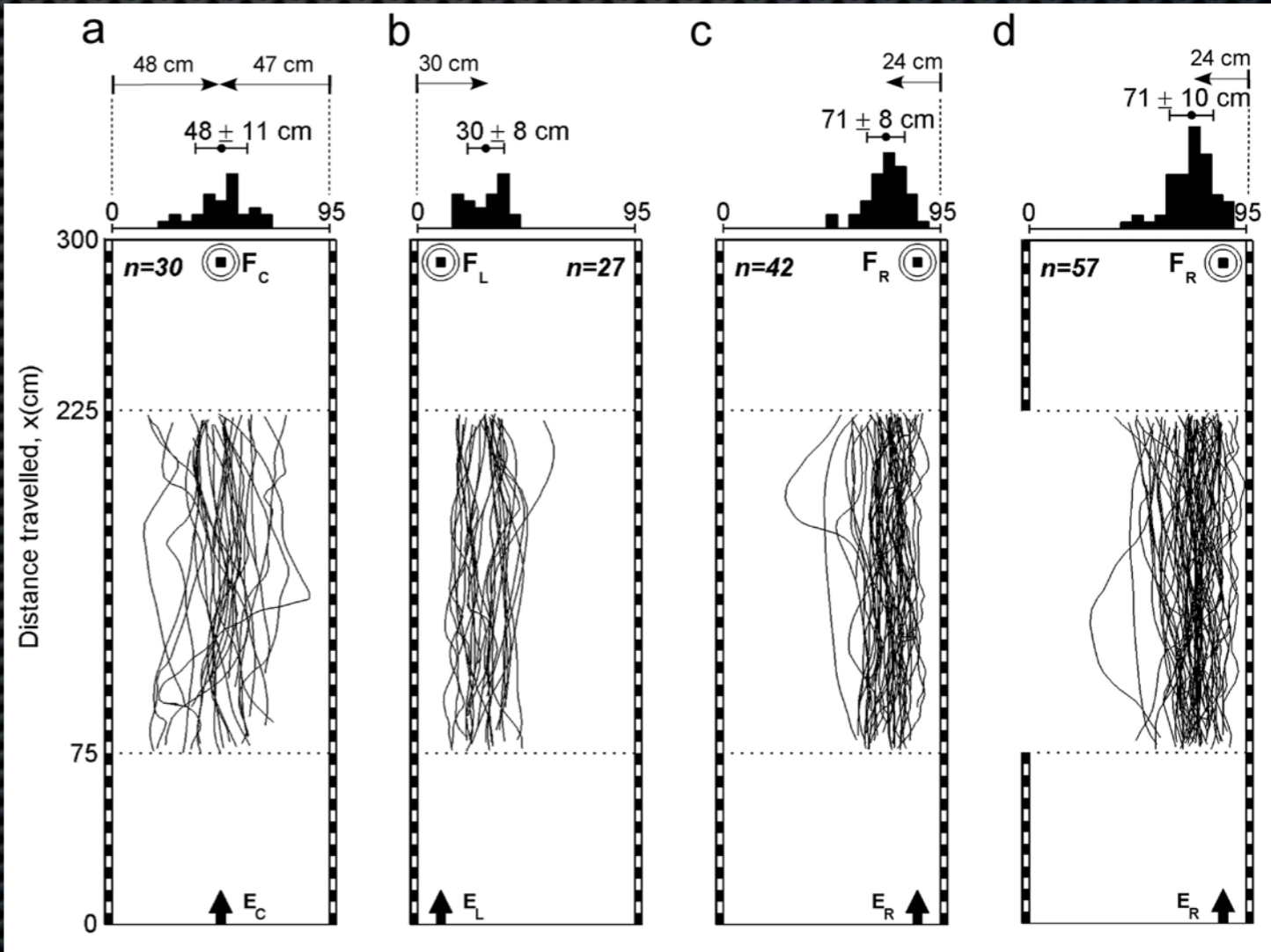
# Le robot OCTAVE



Franceschini, Ruffier, Serres, *Current Biology* (2007)

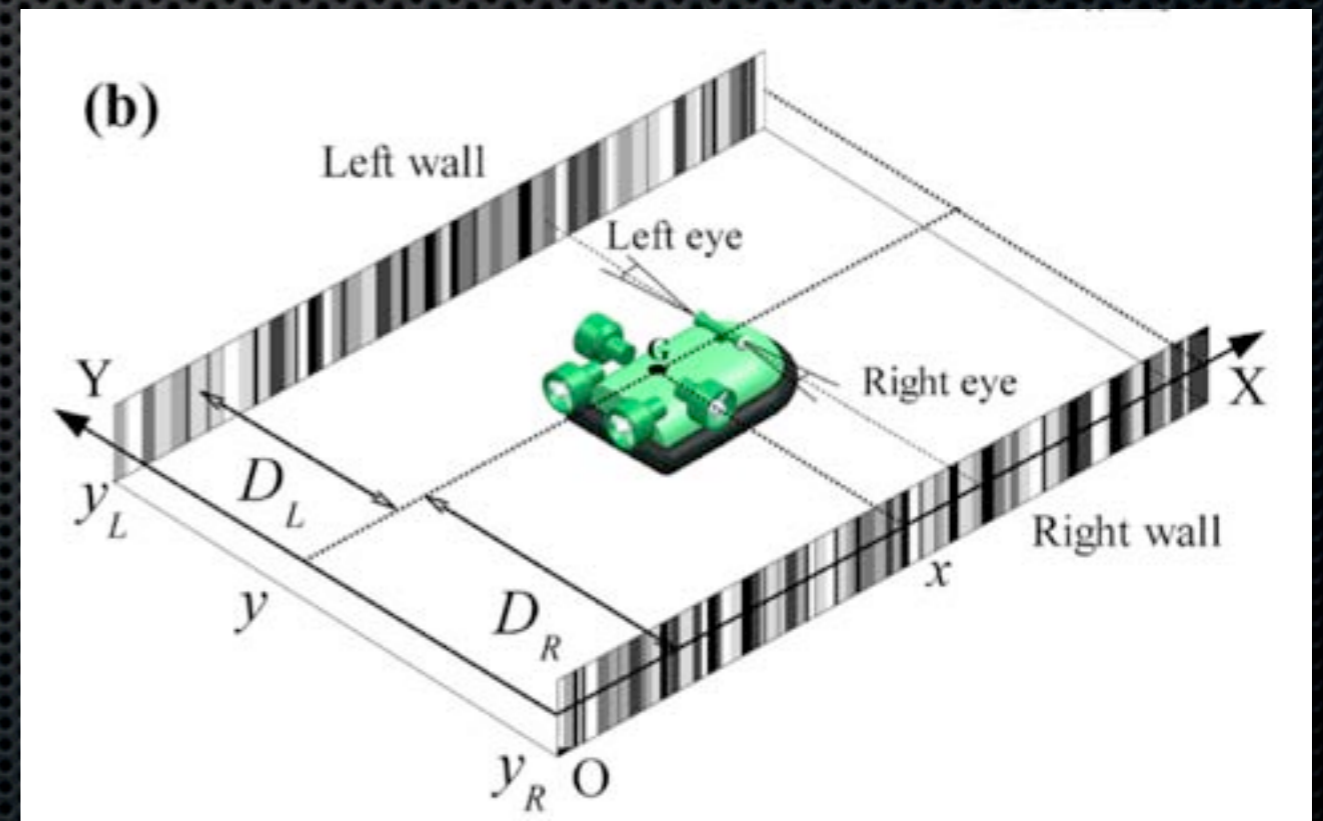


# Le modèle abeille



Serres, Masson, Ruffier, Franceschini *Naturwissenschaften* (2008)

# Le robot LORA



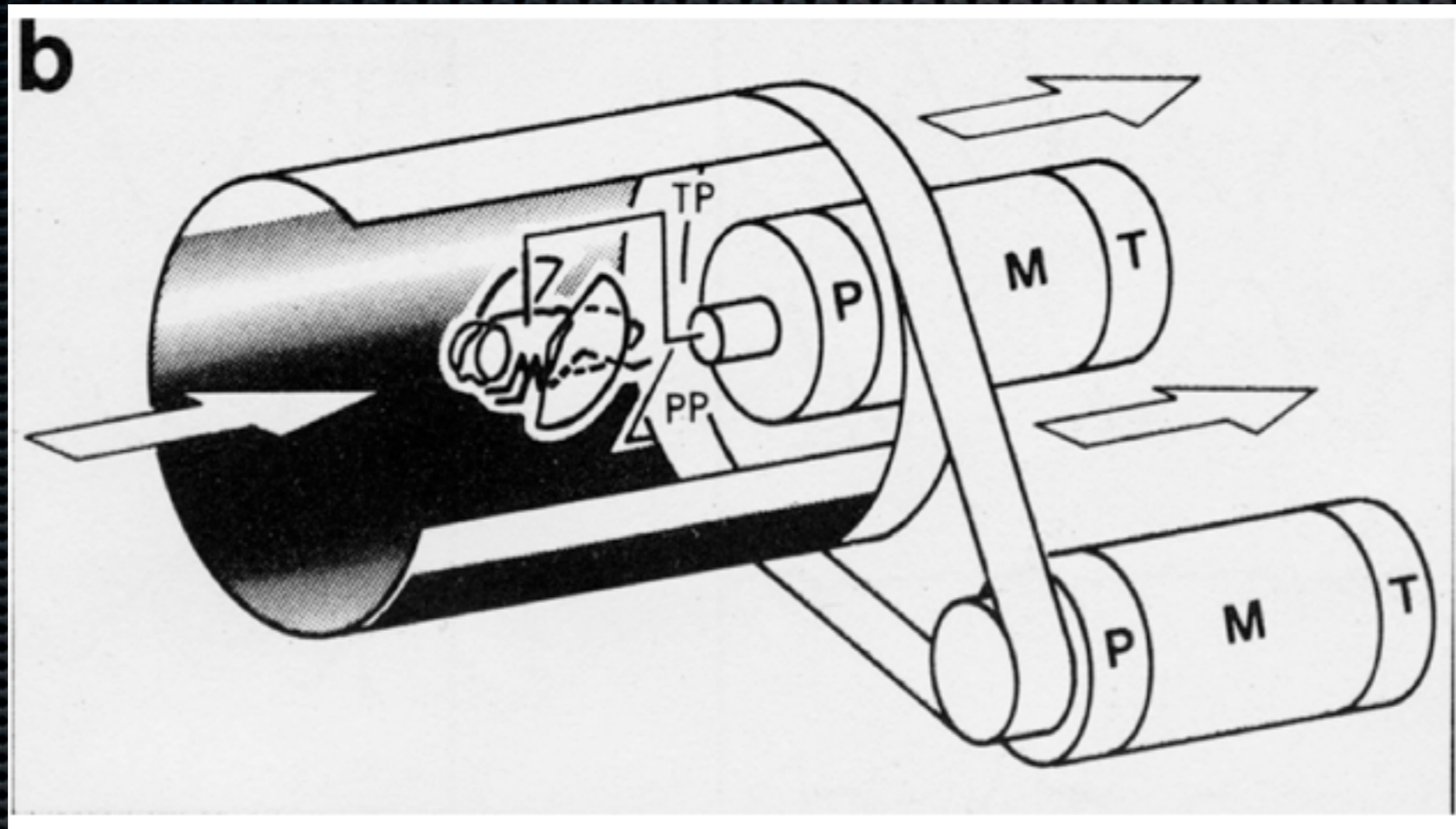
Serres *et al.*, Auton. Robots (2008)

# Stabilisation du regard chez l'insecte

Norbert Boeddeker & Jochen Zeil.

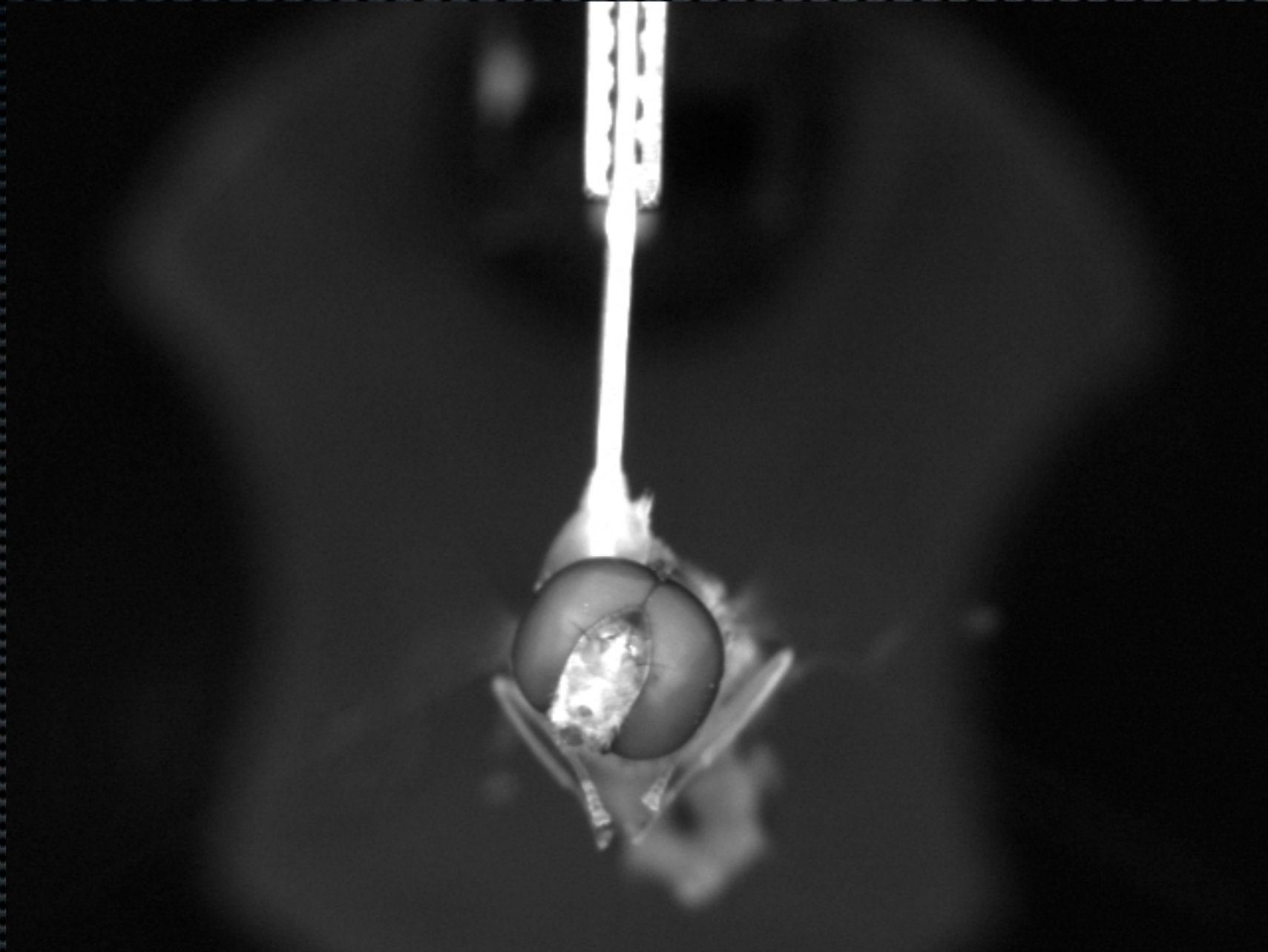


# Générateur de roulis pour insecte



Hengstenberg 1986

# Générateur de roulis pour insecte

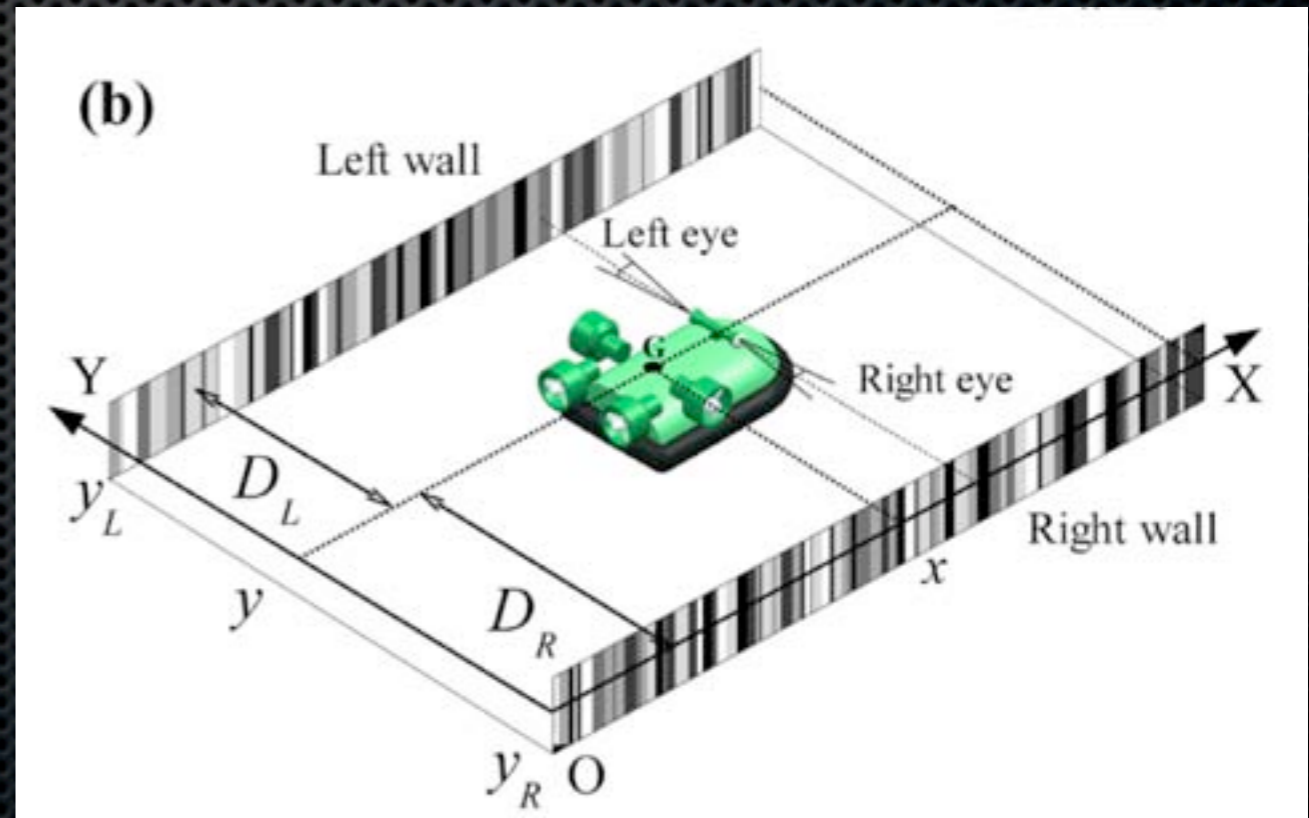


A. Julien-Laferrière, S. Viollet

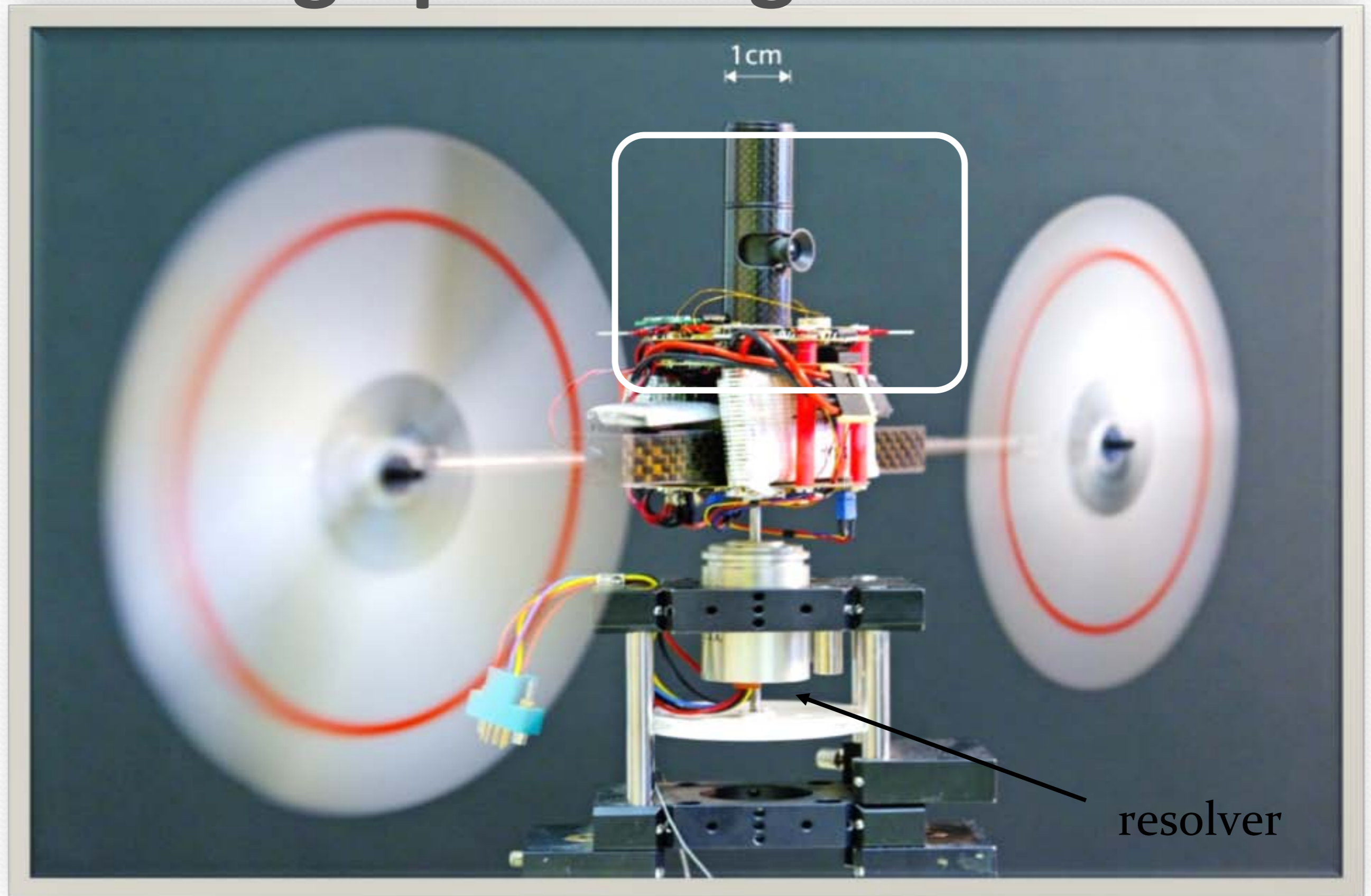
# Le robot LORA



Serres *et al.*, Auton. Robots (2008)

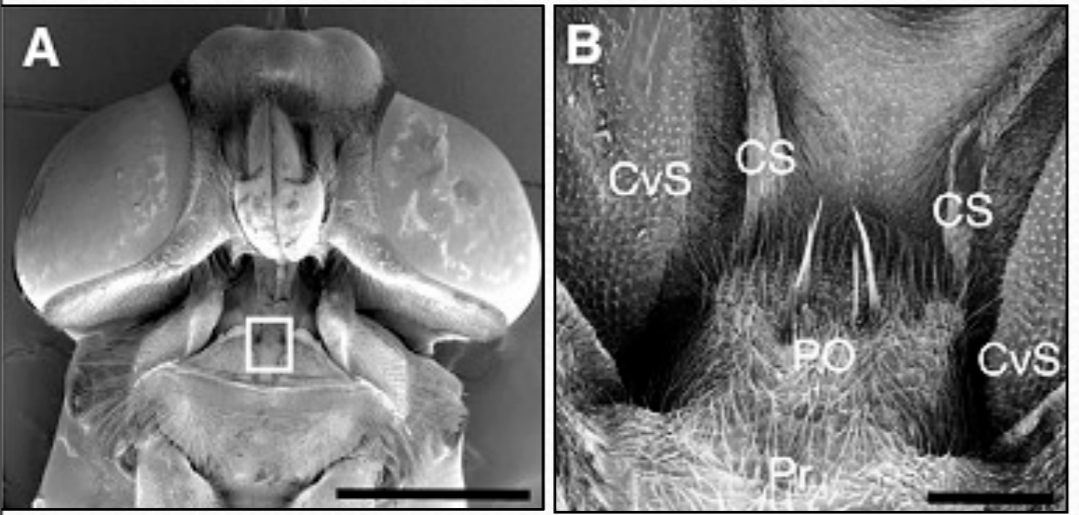


# Pilotage par le regard

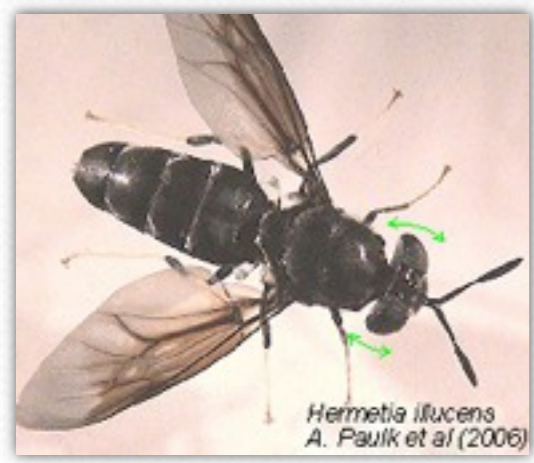
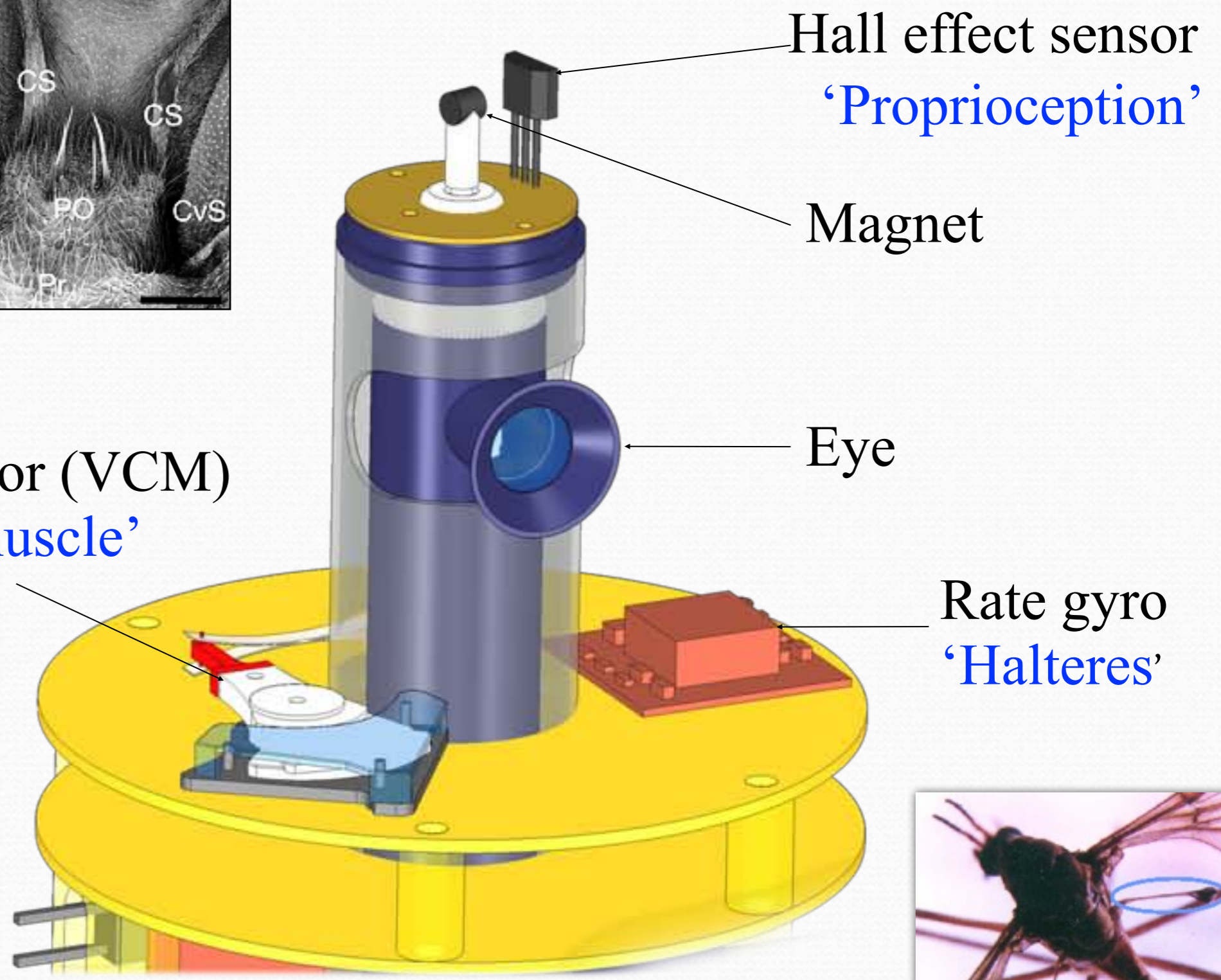


Kerhuel, Viollet and Franceschini: IEEE IROS 2007, Trans. on Robotics 2010.

# OSCAR's oculomotor system

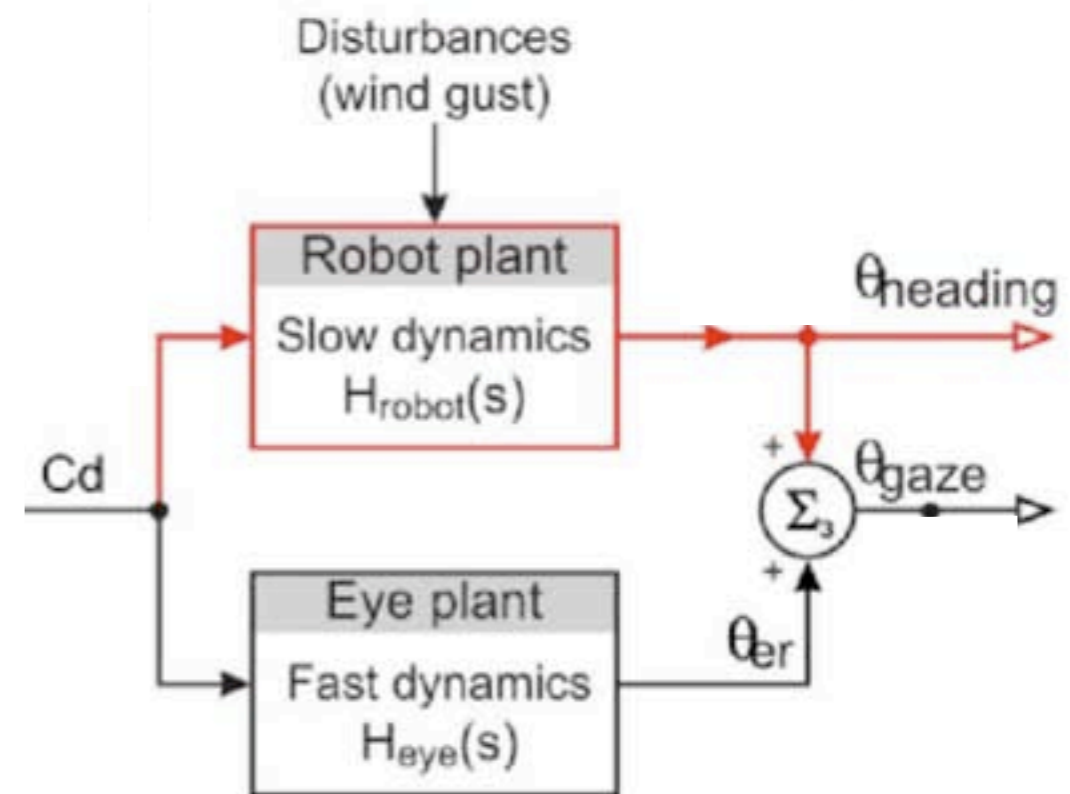


Voice Coil Motor (VCM)  
 'Extra ocular muscle'

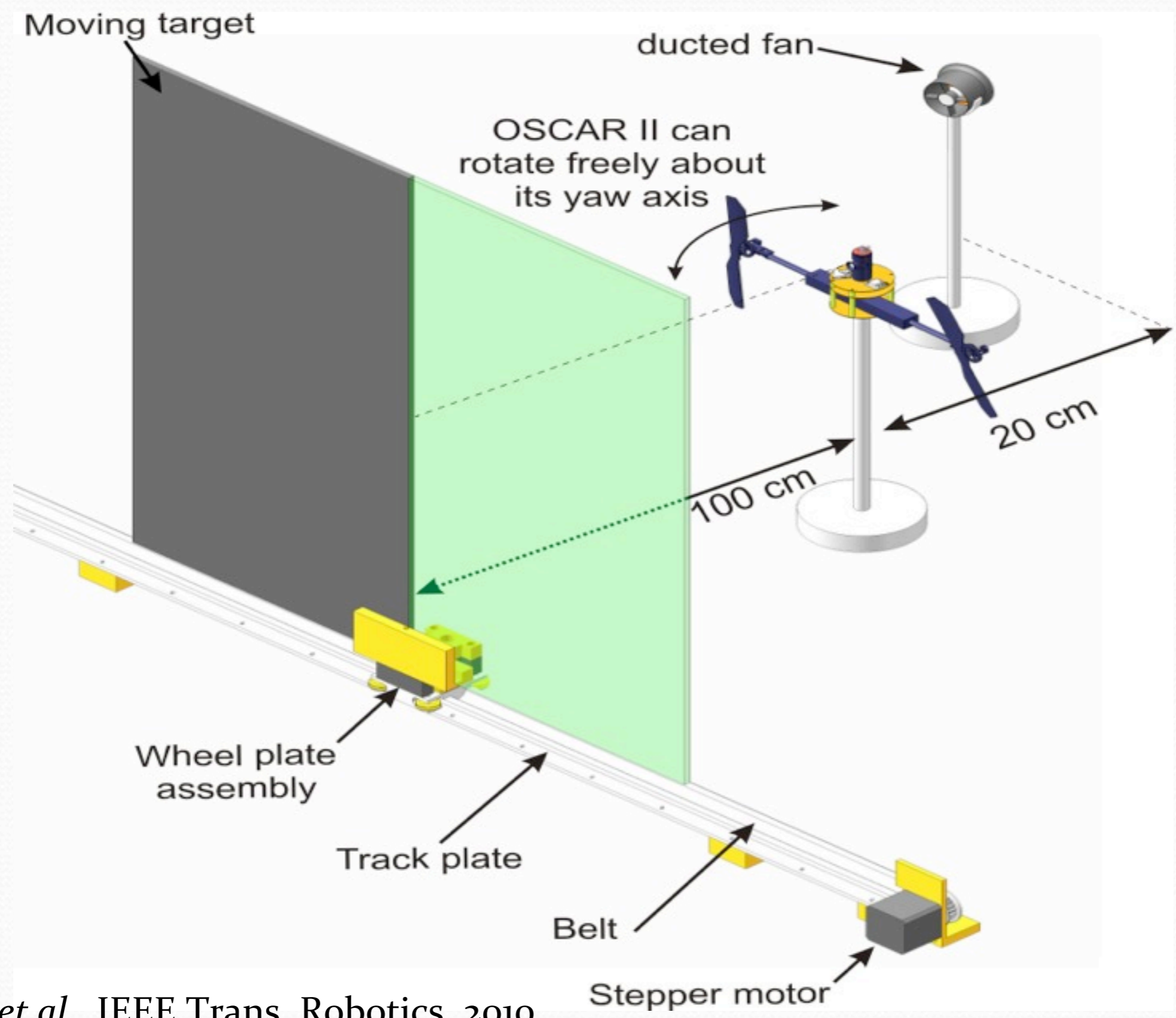




# Model of the gaze and heading control system

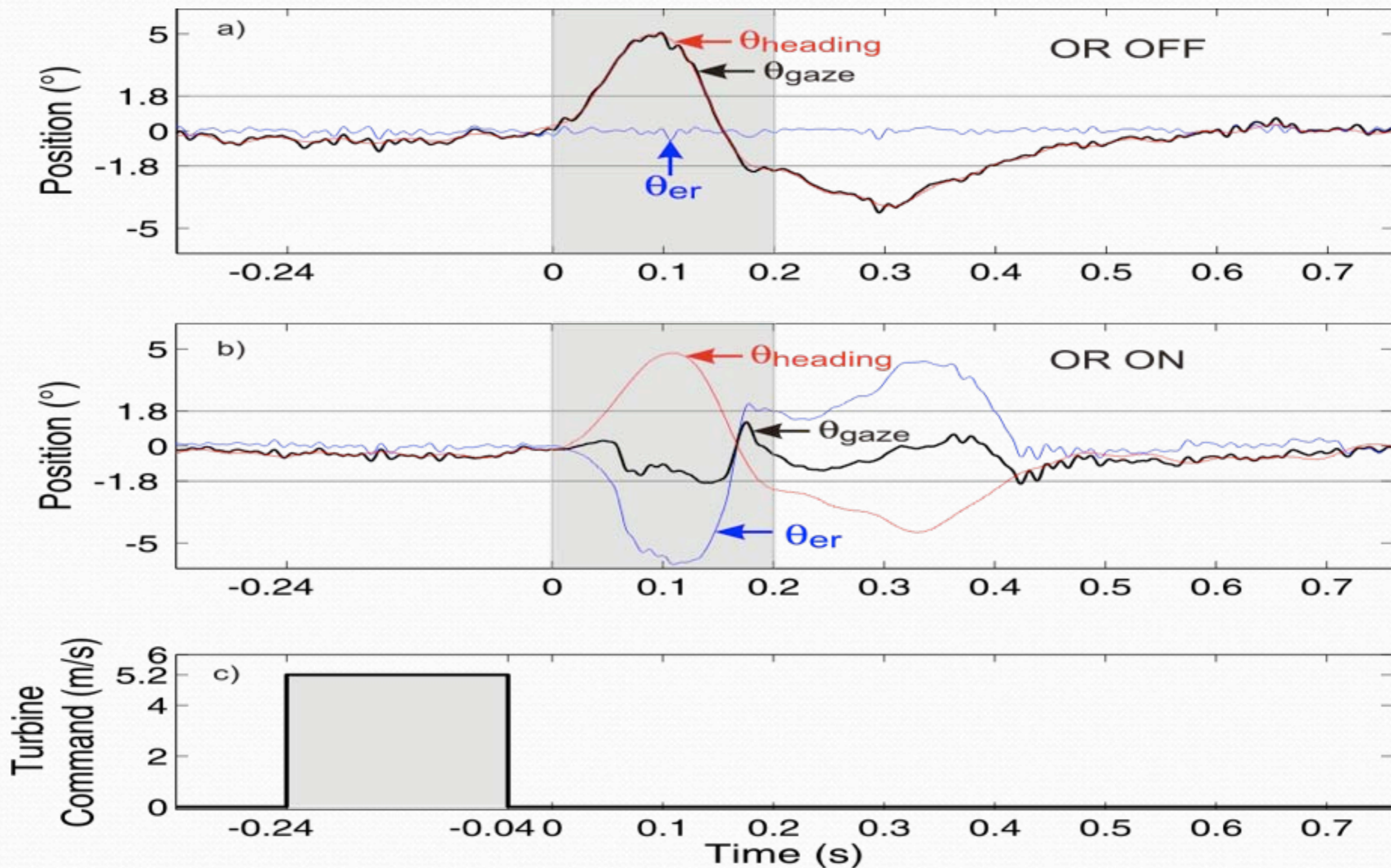


# Test bench

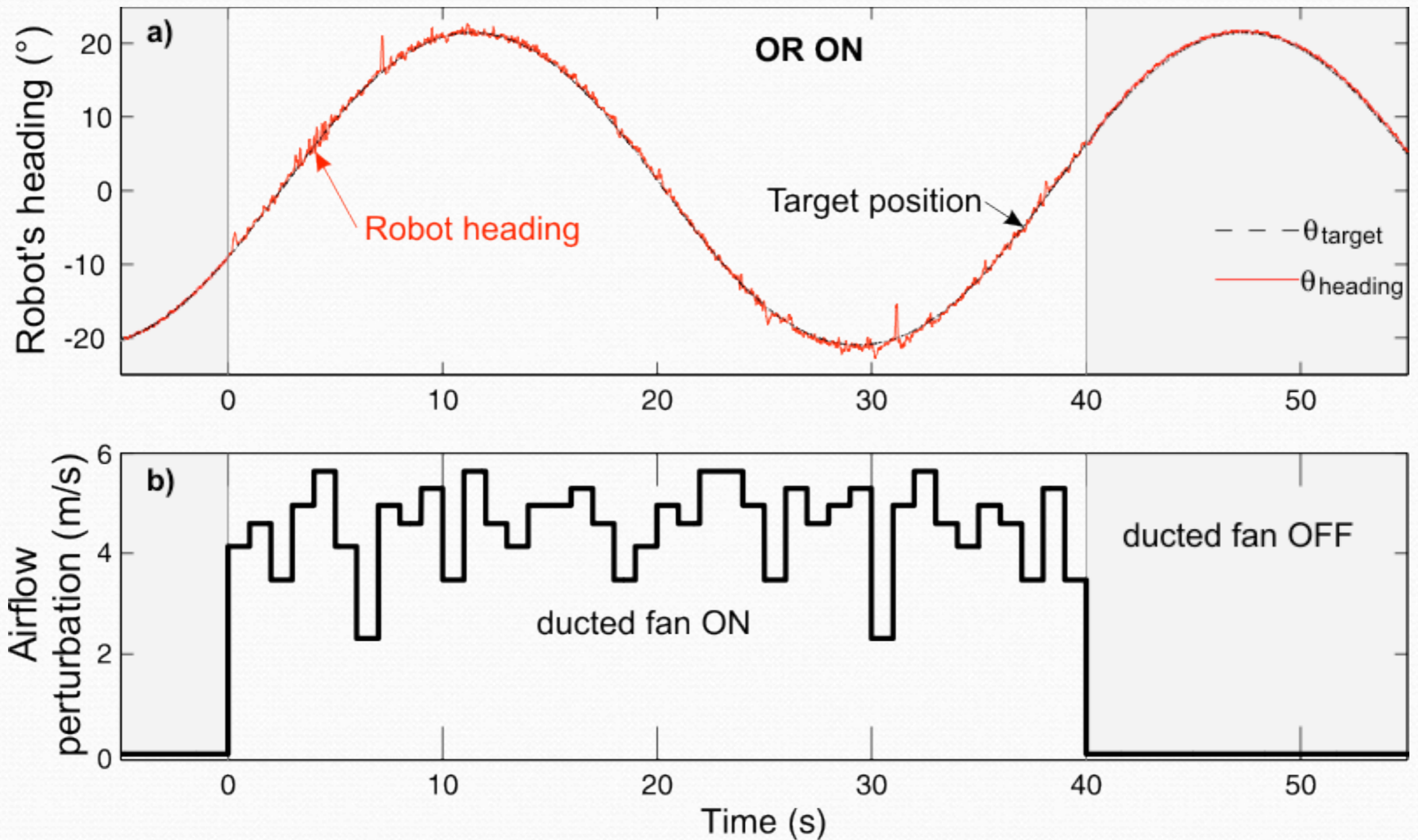


Kerhuel *et al.*, IEEE Trans. Robotics, 2010

# With and without oculomotor reflexes

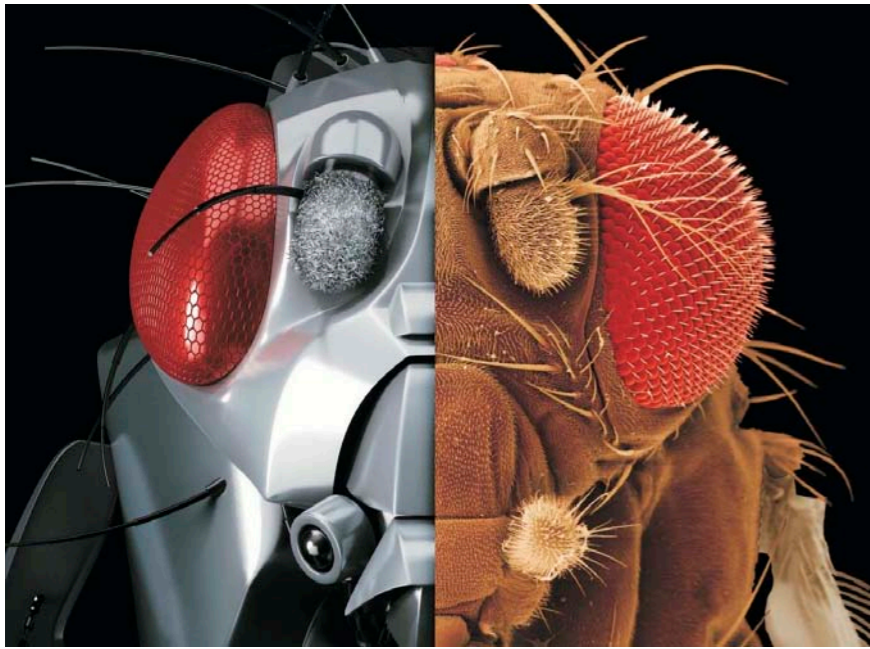


# Smooth tracking



Kerhuel *et al.*, IEEE Trans. Robotics, 2010

# Merci



- Chercheurs :  
F. Ruffier, N. Franceschini, J. Serres
- Doctorants :  
L. Kerhuel, G. Portelli, F. Expert, R. Juston,  
F. Roubieu
- Techniciens :  
M. Boyron, J. Dipéri