

# New school of thought

Cars may one day mimic fish schools to avoid collisions  
以魚為師 車商研發防撞技術

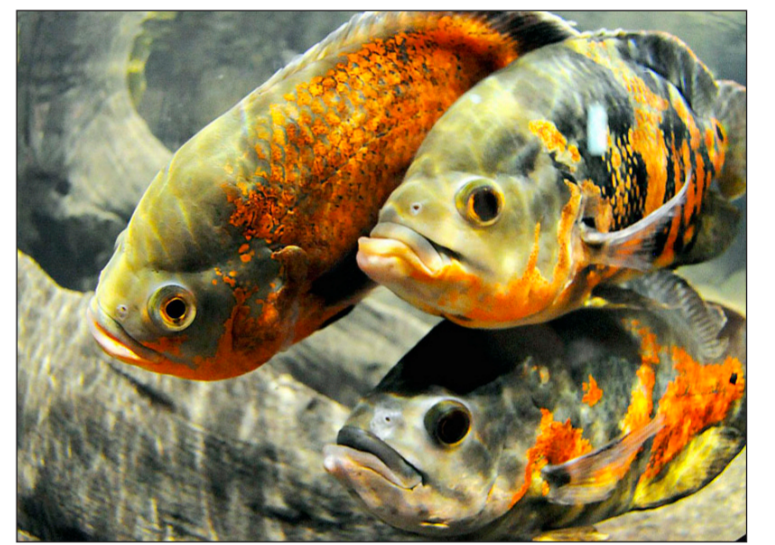


PHOTO: EPA  
照片：歐新社



Engineers in Japan say they are a step closer to developing technology they hope will cut the risk of car crashes — by mimicking the behavior of fish.

The experts at Nissan Motor have been studying fish and the way they are able to swim in schools and avoid **colliding** with each other.

The result is a robot that can travel in a group of up to seven, avoiding bumps by sharing information with its **peers**.

The firm hopes to use the technology in its vehicles in future.

The three-wheeled robot uses a laser range finder, which measures the distance to an **obstacle**, and radio communications to recreate the behavior of fish, which can change direction and travel side by side without colliding.

Last year Nissan unveiled a similar robot inspired by the bumblebee, which is also highly **adept** at avoiding collisions but travels solo.

"We, in a motorized world, have a lot to learn from the behavior of a school of fish in terms of each fish's degree of freedom and safety," said Toshiyuki Andou, the principal engineer in the project.

By sharing information, the group can travel safely, changing its shape as needed, Andou said.

Nissan will demonstrate the technology at the CEATEC electronics trade fair in Japan this week. (AFP)

本工程師表示，他們朝希望減少車禍風險的目標又邁進了一步——師法魚的行為。

1. **collide** /kə'laɪd/ v.

相撞 (xiang1 zhuang4)

例：Two planes collided on the runway but fortunately nobody was injured.  
(跑道上兩架飛機相撞，所幸無人傷亡。)

2. **peer** /pɪr/ n.

同伴 (tong2 ban4)

例：Jason won the respect of his peers while at college.  
(傑森大學時頗受同儕尊敬。)

日產汽車的專家研究魚類及牠們成群游水卻不會相撞的方法。他們的研發出一種機器人，藉由彼此交換訊息來避免相撞，能穿梭於至多七個同伴間。

日產希望未來能將此技術運用在汽車上。

該種三輪機器人利用可探測障礙物距離的雷射測距儀及無線電通訊，重現魚類能夠改變方向又並行不停的游水行為。

日產去年就推出一款相似的機器人，靈感來自同樣擅於避免碰撞的大黃蜂，但大黃蜂通常是單獨行動。

該計畫主要工程師安藤俊之說：「身處在機動化世界的我們，可以從每一條魚游水的自由度及安全性中學習到很多。」

安藤說，機器人藉著彼此交換訊息，得以依據需要變換隊形安全行進。

日產將在本週的日本電子資訊高科技綜合展 (CEATEC) 中展示這項技術。  
(法新社/翻譯：袁星塵)

Left and top: A shoal of 50,000 sardines swim around sand tiger sharks in a large fish tank at the Hakkeijima Sea Paradise Aquarium in Yokohama, suburban Tokyo on March 19, 2009.

PHOTOS: AFP

Inset: Nissan Chief Executive Carlos Ghosn stands next to the Leaf, Nissan's new electronic vehicle, top, and the Infiniti concept car is displayed at the company's new headquarters in Yokohama, Japan, on Aug. 2, 2009.

PHOTOS: BLOOMBERG

左圖及最上圖：三月十九日，東京近郊橫濱八景島海洋樂園水族館的一個大水族箱中，五萬條沙丁魚繞著沙虎鯊游水。

照片：法新社

嵌圖：八月二日在日產汽車日本橫濱新總部，總裁卡洛斯·戈恩站在該公司新推出的電動車Leaf旁(上)，及會場中展示的Infiniti概念車。

照片：彭博社

3. **obstacle** /'ɒbstəkl/ n.

障礙物 (zhang4 ai4 wu4)

例：If you intend to achieve your goals, you'll have to overcome plenty of obstacles on the way.  
(若想達成目標，過程中必須克服許多障礙。)

4. **adept** /ə'dept/ adj.

熟練的 (shou2 lian4 de5)

例：The politician was highly adept at answering questions.  
(這個政治人物回答問題的技巧很高超。)