AIRhead Research Review

Improbable theories, experiments, and conclusions

compiled by Dirk Manley

Group Wiggling in Stadiums

“Social Behaviour: Mexican Waves in an Excitable Medium,” I. Farkas, D. Helbing and T. Vicsek, Nature, vol. 419, September 12, 2002, pp. 131-2. The authors, who are at Eötvös University, Budapest, Hungary, and Dresden University of Technology, Germany, explain that:

The Mexican wave, or La Ola, which rose to fame during the 1986 World Cup in Mexico, surges through the rows of spectators in a stadium as those in one section leap to their feet with their arms up, and then sit down again as the next section rises to repeat the motion. To interpret and quantify this collective human behaviour, we have used a variant of models that were originally developed to describe excitable media such as cardiac tissue.

Solitary Wiggling in Water

“Dynamical Analysis Reveals Individuality of Locomotion in Goldfish,” H. Neumeister, C.J. Cellucci, P.E. Rapp, H. Korn and D.S. Faber, Journal of Experimental Biology, vol. 207, no. 4, February 1, 2004, pp. 697-708. (Thanks to Fiona Pringle and others for bringing this to our attention.) The authors, who are at various universities in the United States and France, explain how they demonstrated, mathematically, that no two goldfish swim in exactly the same way.

Shrunken Heads in Winter


Sopranos: Good, and Incomprehensible

“Acoustics: Tuning of Vocal Tract Resonance by Sopranos,” E. Joliveau, J. Smith and J. Wolfe, Nature, vol. 421, no. 3. January 8, 2004, p. 116. (Thanks to Jaleh Vittam for bringing this to our attention.) The authors, who are at the University of New South Wales, Sydney, Australia, explain that:

We have directly measured the resonance frequencies of the vocal tract of sopranos during singing, and find that, towards the top of their range, they consistently increase the frequency of the lowest resonance to match that of their singing. This significantly increases the loudness and the uniformity of tone, albeit at the expense of comprehensibility.

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