

Iain D. Couzin

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Personal Details

Name: Iain Douglas Couzin

Professional preparation

University of St. Andrews, UK	Biology	B.Sc. Hons. 1 st class, 1995
University of Bath, Bath, UK	Biology	Ph.D., 1999
University of Leeds, Leeds, UK	Postdoctoral researcher	2000 – 2002
Balliol College, Oxford, UK	Junior Research Fellow	M.A. (Oxon), 2003
Princeton University, Princeton, USA	Pew Biocomplexity Fellow	2002 – 2005
University of Oxford, Oxford, UK	Zoology & Math. Biol.	2002 – 2005

Appointments

June 2019 – present	Founding Director, Max Planck Institute of Animal Behavior, Department of Collective Behaviour, Konstanz, Germany
Jan 2019 – present	Speaker (Director), Centre for the Advanced Study of Collective Behaviour, German Science Foundation Cluster of Excellence, U. Konstanz, Germany
Feb 2015 – present	Chair of Biodiversity and Collective Behaviour, Department of Biology, University of Konstanz, Germany
Oct 2014 – May 2019	Director, Max Planck Institute for Ornithology, Konstanz, Germany
Feb 2013 – Jan 2015	Full Professor, Department of Ecology and Evolutionary Biology, Princeton University <i>Affiliated Faculty in Princeton Environmental Institute, Program in Applied and Computational Mathematics, Quantitative and Computational Biology, Princeton Institute for Computational Science and Engineering.</i>
Nov 2007 – Jan 2013	Assistant Professor, Department of Ecology and Evolutionary Biology, Princeton University
2005 – 2007	Royal Society University Research Fellow, Dept. of Zoology, University of Oxford
2003 – 2007	Junior Research Fellow in the Sciences, Balliol College, Oxford

Awards

2023	Rothschild Distinguished Fellowship, University of Cambridge
2022	The Gottfried Wilhelm Leibniz Prize
2022	Falling Walls Prize Life Sciences Winner
2019	The Lagrange Prize
2018-2022	Global Highly Cited Researcher, Web of Science Group, Clarivate
2013	The Zoological Society of London Scientific Medal
2013	The Benjamin Meaker Visiting Professor, Institute for Advanced Studies, University of Bristol
2012	National Geographic's Emerging Explorer Award
2012	Top 5 most cited articles of the decade (1999-2010), Lab Times publication analysis of Animal Behavior Research
2012	The Murray Visiting Professorship, University of Sydney, Australia
2011	PopTech Science and Public Leadership Award
2010	Popular Science Magazine's 'Brilliant 10' Award
2009	The Mohammed Dahleh Award, UC Santa Barbara
2008	Searle Scholar Award
2005	Royal Society University Research Fellowship

Select named/distinguished lectures

- 2024 Special Lecture, Federation of European Neuroscience Societies (FENS), Vienna, Austria
- 2023 Nobel Prize Symposium Lecture, Stockholm, Sweden
- 2023 Rothschild Distinguished Lecture, University of Cambridge, UK
- 2022 Falling Walls Science Breakthroughs of the Year, Berlin
- 2022 The Rhodes Lecture, Emory University, USA
- 2019 Tokyo Prize (Japanese Emperor Prize) Symposium, Tokyo, Japan
- 2019 Annual Distinguished Lecture, Cognitive, Computational and Systems Neuroscience (CCSN), Washington University in St. Louis
- 2019 Public Lecture, SAGE Centre for the Study of the Mind at the University of California Santa Barbara
- 2019 The Darwin Lecture, University of Cambridge, UK
- 2019 The Gatsby Lecture, COSYNE (Computational and Systems Neuroscience), Denver, USA
- 2018 The Immelmann Lecture, University of Bielefeld, Germany
- 2017 The Siemens Lecture, Carl Friedrich von Siemens Foundation, Munich, Germany
- 2017 The Odum Lecture, University of Georgia, USA
- 2017 The Bowen Lecture, Johns Hopkins Campus, Rockville, USA
- 2015 Director's Seminar, Howard Hughes Medical Institute (HHMI), Janelia Research Campus
- 2014 The Kwanghil Koh Lecture on Mathematics in Our Time, College of Sciences, NC State University
- 2014 Interdisciplinary Distinguished Seminar, Federal Laboratory for Analytical Sciences and the Army Research Office, NC, USA
- 2014 Public Lecture and Keynote, Courant Research Center Symposium "Evolution of Social Behavior", University of Göttingen, Germany
- 2014 The Institute of Science and Technology (IST) Distinguished Lecturer Series, Austria
- 2013 The Benjamin Meaker Lecture, Institute for Advanced Studies, University of Bristol
- 2013 Howard Hughes Medical Research Institute, "Pathbreaking careers in science"
- 2013 The Jacob Marschak Lecture, UCLA Anderson School of Management
- 2012 The Murray Lecture, University of Sydney, Australia
- 2012 The Bernard Rothenberg Lecture in Biology and Public Policy, PA
- 2012 The von Neumann Public Lecture, Institute for Discovery, University of Wisconsin Madison
- 2012 National Geographic Live! Discussion between Nobel Laureate Mario Molina and National Geographic Explorer Iain D. Couzin
- 2012 Public Lecture, Harvard Museum of Natural History
- 2012 Keynote Address, NVIDIA GPU Technology Conference, San Jose
- 2011 The Prosser Lecture, Dartmouth College
- 2011 The Blundon Lecture, Nova Scotia
- 2011 The Storer Lecture, UC Davis
- 2011 The Santa Fe Community Lecture, James A. Little Theatre, Santa Fe
- 2010 Public Lecture, Center for Science and Industry IMAX Theatre, Columbus, OH;
- 2009 Mohammed Dahleh Distinguished Lecture, UC Santa Barbara
- 2008 The Marsden Lecture, McGill University, Canada

Public communication of science

The beauty and ubiquity of collective animal behaviour provides a powerful means by which to engage the public in science. Throughout my career I have been dedicated to promoting the public understanding of science, building trust in science, combatting misinformation and promoting science as a public good. In addition to regularly giving international public lectures, as a National Geographic Explorer I have worked on "Live!" events, including "[Lessons from a cannibal plague](#)" and "[Discussion between Nobel Laureate Mario Molina and Iain Couzin](#)". I have worked with Radiolab in the US, doing both radio and a live show, and with the BBC World Service & Wellcome Collection, "[Exchanges at the Frontier, with Iain Couzin](#)" London, broadcast on BBC World Service. In visual media I worked

with the BBC as science consultant on series including *Predators* (3 episodes, 2000), *Massive Nature* (2004), *Swarm: Nature's Incredible Invasions* (2 episodes, 2009), and appeared on *The Code* (2011) and *Dara O'Briens Science Club* (2013). Following my move to the US, I worked as science consultant with National Geographic on *Great Migrations* (3 episodes; 2010) and PBS on *Nature: The Gathering Swarms* (2014). Since moving to Germany I have worked with ARTE documentary on [Swarm Intelligence](#), with ZDF on [Smart Swarms](#) and 3 [shows with 3Sat](#). In 2023 I collaborated with UK YouTuber Tom Scott on a video [It's the Matrix, but for locusts](#), showing science as it happens, as opposed to secrecy until publication. This has received nearly 3 million views.

Teaching

Teaching is core to my mission of sharing knowledge and inspiring curiosity. I have chosen to take a full teaching load at the University of Konstanz and I teach at both undergraduate and masters student levels. I also teach internationally, including as faculty of a Training Program in Quantitative Biology and Ecology for young Brazilian and other Latin American scientists in Sao Paulo, Brazil. I have also developed, with National Geographic Learning, an international [teaching unit on collective behavior and cooperation](#) for an integrated skills course for lower-secondary/middle schools worldwide. I have also been involved with AimHigher Masterclasses, including at Newcastle United's "St. James Park" and Sunderland F.C.'s "The Stadium of Light", targeting students groups underrepresented in universities.

Mentorship

29 Ph.D. and Postdoctoral alumni have gone on to tenure track or tenured positions at: Ahmedabad University (India), Auburn University (USA), Chalmers University of Technology (Sweden); CSIC Centre for Advanced Studies Blanes (Spain), Cornell University (USA), Eötvös Loránd University (Hungary), Humboldt University of Berlin (Germany), Indian Institute of Technology Varanasi (India), Indian Institute of Science (India), Johns Hopkins University (USA), New Jersey institute of Technology (USA), Polytechnic University of Turin (Italy), The City University of New York (CUNY) (USA), The Hebrew University of Jerusalem (Israel), University of Adelaide (Australia), 2x University of Bristol (UK), UC San Diego (USA), University of Glasgow (UK), UMass Boston (USA), University of Minnesota (USA), University of Pennsylvania (USA), University of Strasbourg (France), University of Sydney (Australia), University of Toulouse (France), 2x University of Washington (USA), University of Wyoming (USA) and Wilfred Laurier University (Canada).

Training in my lab also focuses on pathways to contributions outside academia, for example:

Dr. Sepideh Bazazi (PhD student) is Team Lead at OliverWyman UK and was TechWomen100 winner in 2020; Dr. Mircea Davidescu (PhD student) is Decision Science Manager at Meta; Dr. Jolyon Faria (Postdoc.) is Data Science Director at AstraZeneca, Cambridge; Dr. Andrew Hartnett (Ph.D. student) is Senior Software Engineering Manager at Lattitude AI; Dr. Conor Heins (Ph.D. student) is Senior Machine Learning Engineers, VERSES AI; Dr. Yael Katz (Postdoc.) is Founder and CEO of Simbryo Technologies, Co-Founder and former CEO of Braincheck, and Entrepreneur in Residence at Rice University Business School.

Recent Funding Overview

In the last 10 years I have obtained €12.5 million in competitive grant funding (ERC, ONR, DFG etc.), and in competitive major centre grants, €32M for the research building 'Centre for Visual Computing of Collectives' (German Federal and State Government) and €30.5M for the Excellence Cluster 'Centre for the Advanced Study of Collective Behaviour' (DFG). Details of funding can be found below.

Publications

2024

[175] Sayin, S., Couzin-Fuchs, E., Petelski, I., Salahshour, M., Lee, C-Y., Graving, J.M., Li, L., Deussen, O., Sword, G.A., & Couzin, I.D. (2024) The behavioral mechanisms governing collective motion in swarming locusts, *in revision at Science*.

[174] Li, L., Nagy, M., Amichay, G., Wu, R., Wang, W., Deussen, O., Rus, D. & Couzin, I.D. (2024) Reverse engineering the control law for schooling in zebrafish using virtual reality. *In revision at Science Robotics*.

[173] Salahshour, M. & Couzin, I.D. (2024) Subjective rationality provides a solution to social dilemmas. *In review*.

[172] Wu, R., Deussen, O., Couzin, I.D. & Li, L. (2024) Non-invasive eye tracking and retinal view reconstruction free swimming schooling fish, *in revision at Communications Biology*.

[171] Bath, D.E., Graving, J.M., Walter, T., Vizcaíno, J.P. & Couzin, I.D. (2024) Collective sensing in mobile animal groups, *In revision at Current Biology*.

[170] Goldstein, A., Chen, X., Amichai, E., Boonman, A., Harten, L., Nathan, R., Toledo, S., Couzin, I.D.* & Yovel, Y.* (2024) Acoustic map-based navigation in echolocating bats. **Science**, *in press* (*equal contribution)

[169] Sampaio, E., Sridhar, V.H., Francisco, F., Nagy, M., Sacchi, A., Stransburg-Peshkin, A., Nührenberg, P., Rosa, R., Couzin, I.D.* & Gingins, S.* (2024) Multidimensional leadership and composition-driven success in octopus-fish hunting groups. **Nature Ecology and Evolutionary Biology**, *in press* (*equal contribution)

[168] Heins, C., Millidge, B., Da Costa, L., Mann, R., Friston, K. and Couzin, I.D. (2024) Collective behavior from surprise minimization. **PNAS** (121)17, e2320239121.

[167] Amichay, G., Li, L., Nagy, M. & Couzin, I.D. (2024) Revealing the mechanism and function underlying pairwise temporal coupling in collective motion. **Nature Communications** 15, 4356.

[166] Waldmann, U., Chan, A.H.H., Naik, H., Nagy, M., Couzin, I.D., Deussen, O., Goldlücke, B. & Kano, F. (2024) 3D-MuPPet: 3D multi-pigeon pose estimation and tracking, **International Journal of Computer Vision**, 1-18.

[165] Gorbonos, D., Oberhauser, F., Costello, L.L., Günzel, Y., Couzin-Fuchs, E., Koger, B. and Couzin, I.D. (2024) An effective hydrodynamic description of marching locusts. **Physical Biology** 21, 026003.

[164] Chao, L-M., Jia, L., Wang, S., Liberzon, A., Ravi, S., Couzin, I.D., & Li, L (2024) Tailbeat perturbations improve swimming efficiency by reducing the phase lag between body motion and the resulting fluid response. **PNAS Nexus**, pgae73.

[163] Gorbonos, D., Gov, N.S. and Couzin, I.D. (2024) The geometrical structure of bifurcations during spatial decision-making. **PRX Life** 2, 013008.

[162] Li, L., Chao, L-M., Wang, S., Deussen, O., & Couzin, I.D. (2024) Robotwin: a platform to study hydrodynamics in schooling fish. **IEEE Robotics and Automation Magazine** 31(1), 10-17.

2023

[161] Davidescu, M.R., Romanczuk, P., Gregor, T. & Couzin, I.D. (2023) Growth produces coordination trade-offs in an animal lacking a central nervous system. **PNAS** 120 (11), e2206163120

[160] Couzin, I. D., & Couzin-Fuchs, E. (2023). The chemical ecology of locust cannibalism. **Science** 380(6644), 454-455.

[159] Williams, H.J., Sridhar, V.H., Hurme, E., Gall, G.E., Borrego, N., Finerty, G.E., Couzin, I.D., Galizia, C.G., Dominy, N.J., Rowland, H.M. & Hauber, M.E., 2023. Sensory collectives in natural systems. **eLife** 12, p.e88028.

[158] Nagy, M., Naik, H., Kano, F., Carlson, N., Koblitz, J.C., Wikelski, M. & Couzin, I.D. (2023) SMART-BARN: Scalable Multimodal Arena for Real-time Tracking Behaviour of Animals in laRge Numbers. **Science Advances** 9(35), eadf8068.

[157] Neubauer, L., Davidson, J.D., Wild, B., Dormagen, D.M., Landgraf, T., Couzin, I.D. & Smith, M.L. (2023) Honey bee drones are synchronously hyperactive inside the nest, **Animal Behaviour** 203, 207-223..

[156] Jhawar, J., Davidson, J.D., Weidenmüller, A., Wild, B., Dormagen, D.M., Landgraf, T., Couzin, I.D., & Smith, M.L. (2023) How honey bees respond to heat stress from the individual to colony level. **Journal of the Royal Society Interface** 20(207), 20230290.

[155] Oscar, L., Li, L., Gorbonos, D., Couzin, I. D., & Gov, N. S. (2023). A simple cognitive model explains movement decisions in zebrafish while following leaders. **Physical Biology**, 20(4), 045002.

[154] Couzin, I.D., & Li, L. (2023). The benefits of swimming together. **eLife**, 12, e86807.

[153] Koger, B., Deshpande, A., Kerby, J. T., Graving, J. M., Costelloe, B. R., & Couzin, I. D. (2023). Quantifying the movement, behaviour and environmental context of group-living animals using drones and computer vision. **Journal of Animal Ecology** 92(7), 1357-1371.

[152] Sridhar, V. H., Davidson, J. D., Twomey, C. R., Sosna, M. M., Nagy, M., & Couzin, I. D. (2023). Inferring social influence in animal groups across multiple timescales. **Philosophical Transactions of the Royal Society B**, 378(1874), 20220062..

[151] Naik, H., Chan, A. H. H., Yang, J., Delacoux, M., Couzin, I. D., Kano, F., & Nagy, M. (2023). 3D-POP- An automated annotation approach to facilitate markerless 2D-3D tracking of freely moving birds with marker-based motion capture. Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 21274-21284

[150] Couzin, I.D. & Heins, C. (2023) Emerging technologies for behavioral research in changing environments. **Trends in Ecology and Evolution**, 38(4), 346-354.

2022

[149] Kano, F., Naik, H., Keskin, G., Couzin, I.D. & Nagy, M. (2022) Head-tracking of freely-behaving pigeons in a motion-capture system reveals the selective use of visual fields, **Scientific Reports** 12(1), 1-15.

[148] Jolles, J., Sosna, M.M.G., Mazué, G., P.F., Twomey, C.R., Bak-Coleman, J., Rubenstein, D.I. & Couzin, I.D. (2022) Both predator and prey features predict the predation risk and survival of schooling prey. **eLife** 11, e76344.

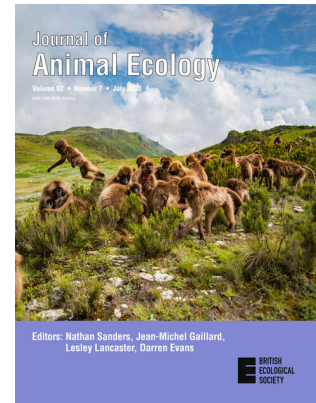
[147] Bak-Coleman, J.B., Tokita, C.K., Morris, D.H., Rubenstein, D.I. & Couzin, I.D. (2022) Collective wisdom in polarised groups, **Collective Intelligence** 1(1), 26339137221104788.

[146] Waldman, U., Nail, H., Nagy, M., Kano, F., Couzin, I.D., Deussen, O. & Goldlücke, B. (2022) I-MuP-PET: Interactive multi-pigeon pose estimation and tracking, In **DAGM German Conference on Pattern Recognition**, pp. 513-528. Cham: Springer International Publishing.

[145] Smith, M.L., Davidson, J.D., Wild, B., Dormagen, D.M., Landgraf, T. & Couzin, I.D. (2022) Behavioural variation across the days and lives of honey bees, **iScience** 10482.

[144] Heins, C., Millidge, B., Demekas, D., Klein, B., Friston, K., Couzin, I.D. & Tschantz, A. (2022) pymdp: A Python library for active inference in discrete state spaces, **The Journal of Open Source Software** 7(73), 4098.

[143] Poel, W., Daniels, B. C., Sosna, M. M., Twomey, C. R., Leblanc, S. P., Couzin, I. D., & Romanczuk, P. (2022) Subcritical escape waves in schooling fish. **Science Advances** 8(25), eabm6385.



[142] Tuia, D. ... Couzin, I.D. et al. (2022) Perspectives in machine learning for wildlife conservation` **Nature Communications**, 13, 792.

[141] Jetz, W. ... Couzin, I.D. et al., (2022) Biological Earth observation with animal sensors. **Trends in Ecology and Evolutionary Biology**, 37(4), 293-298.

2021

[140] Sridhar, V.H., Li, L., Gorbonos, D., Nagy, M., Schell, B.R., Sorochnik, T., Gov, N.S. & Couzin, I.D. (2021) The geometry of decision-making in individuals and collectives, **PNAS** 118 (50), e2102157118.

[139] Bak-Coleman, J. B., Alfano, M., Barfuss, W., Bergstrom, C. T., Centeno, M. A., Couzin, I. D., ... & Weber, E. U. (2021). Stewardship of global collective behavior. **PNAS**, 118 (27), e2025764118.

[138] Lutz, M.J., Reid, C.R., Lustri, C.J., Kao, A.B., Garnier, S. & Couzin, I.D. (2021) Individual error correction drives responsive self-assembly in army ant scaffolding structures, **PNAS** 118 (17), e2013741118.

[137] Davidson, J.D., Sosna, M.M.G., Twomey, C.R., Sridhar, V.H., Leblanc, S.P. & Couzin, I.D. (2021) Collective detection based on visual information in animal groups. **Journal of the Royal Society Interface** 180, 20210142.

[136] Walter, T., & Couzin, I. D. (2021). TRex, a fast multi-animal tracking system with markerless identification, 2D body posture estimation and visual field reconstruction, **eLife** 10: e64000.

[135] Li, L., Ravi, S., Xie, G., & Couzin, I. D. (2021). Using a robotic platform to study the influence of relative tailbeat phase on the energetic costs of side-by-side swimming in fish. **Proceedings of the Royal Society A**, 477(2249), 20200810.



[134] Marcelino, R., Sampaio, J., Amichay, G., Gonçalves, B., Couzin, I. D., & Nagy, M. (2021). Collective Behavior in Football. *Match Analysis: How to Use Data in Professional Sport*, 18.

[133] Wild, B., Dormagen, D.M., Zachariae, A., Smith, M.L., Traynor, K.S., Brockman, D., Couzin, I.D. & Landgraf, T. (2020) Social networks predict the life and death of honey bees, 12(1), 1110 **Nature Communications**.

2020

[132] Li, L., Nagy, M., Graving, J.M., Bak-Coleman, J., Xie, G & Couzin, I.D. (2020) Vortex phase matching as a strategy of schooling in robots and in fish, **Nature Communications** 11(1), 1-9.

[131] Jolles, J., Mazué, G., Davidson, J., Behrmann-Godel, J. & Couzin, I.D. (2020) *Schistocephalus* parasite infection alters sticklebacks' movement ability and thereby shapes social interactions, **Scientific Reports** 10, 12282.

[130] Nagy, M., Horicsányi, A., Kubinyi, E., Couzin, I.D., Vásárhelyi, G., Flack, A. & Vicsek, T (2020) Synergistic benefits of group search in rats, **Current Biology** 30, 1-6.

[129] Hugo, H., Marcel, G., Hermes, M.G., Garcete-Barrett, B.R. & Couzin, I.D. (2020) First evidence of wasp brood development inside active nests of a termite with the description of a previously unknown potter wasp, **Ecology and Evolution** 10, 12663-12674.

[128] Tang, W., Davidson, J., Zhang, G., Conen, K., Fang, J., Serluca, F., Li, J., Xiong, X., Coble, M., Tsai, T., Molind, G., Fawcett, C., Sanchez, E., Zhu, P., Couzin, I.D. & Fishman, M.C. (2020) Genetic control of collective behaviour in zebrafish, **iScience** 23(3), 100942.

[127] Carlson, N., Kelly, E.M. & Couzin, I.D. (2020) Individual vocal recognition across taxa, ***Philosophical Transactions of the Royal Society B*** 375, 20190479.

[126] Marcelino, R., Sampaio, J., Amichay, G., Gonçalves, Couzin, I.D. & Nagy, M. (2020) High-throughput analysis of correlated trajectory segments reveals dynamical and adaptive strategies of team sport players, ***Chaos, Solitons and Fractals*** 138, 109831.

[125] Naik, H., Bastien, R., Navab, N. & Couzin, I.D. (2020) Animals in virtual environments, ***IEEE Transactions on Visualization and Computer Graphics***, 2073-2083.



2019

[124] Papageorgiou, D., Christensen, C., Gall, G.E.C., Klarevas-Irby, J., Nyaguthii, B., Couzin, I.D. & Farine, D.R. (2019) The multi-level society of a small-brained bird, ***Current Biology*** 29(21), R1120-R1121.

[123] Graving, J.M., Chae, D., Naik, H., Li, L., Koger, B., Costelloe, B.R. & Couzin, I.D. (2019) Deep-PoseKit, a software toolkit for fast and robust animal pose estimation using deep learning, ***eLife*** 8:e47994.

[122] Sosna M., Twomey, C.R., Bak-Coleman, J., Poel, W., Daniels, B.C., Romanczuk, P. & Couzin, I.D. (2019) Individual and collective encoding of risk in animal groups, ***PNAS*** 116(41), 20556-20561.

[121] Kao, A. & Couzin, I.D. (2019) Modular structure within groups causes information loss but can improve decision-accuracy, ***Philosophical Transactions of the Royal Society B*** 374(1774), 20180378.

[120] Rahwan, I., Cebrian, M., Obradovich, N., Bongard, J., Bonnefon, J-F, Breazeal, C., Crandall, J.W., Christakis, N.A., Couzin, I.D., Jackson, M.O., Jennings, N.R., Kamar, E., Kloumann, I.M., Larochelle, H., Lazer, D., McElreath, R., Mislove, A., Parkes, D.C., Pentland, A.S., Roberts, M.E., Shariff, A., Tenenbaum, J.B. & Wellman, M. (2018) Machine behaviour, ***Nature*** 568(7753), 477-486.

2018

[119] Hein, A.M., Gill, M.A., Twomey, C.R., Couzin, I.D. & Levin, S.A. (2018) Conserved behavioral circuits govern high-speed decision-making in wild fish shoals. ***PNAS*** 115(48), 12224-12228.

[118] Flack, A., Nagy, M., Fiedler, W., Couzin, I.D. & Wikelski, M. (2018) From local collective behaviour to global migratory patterns in white storks, ***Science*** 360(6391), 911-914.

[117] Couzin, I.D. (2018) Synchronization: the key to effective communication in animal collectives. ***Trends in Cognitive Sciences*** 22(10), 844-846.

[116] Kao, A. B., Berdahl, A. M., Hartnett, A. T., Lutz, M. J., Bak-Coleman, J. B., Ioannou, C. C., Giam, X & Couzin, I. D. (2018). Counteracting estimation bias and social influence to improve the wisdom of crowds. ***Journal of The Royal Society Interface*** 15(141), 20180130.

[115] Couzin, I.D. (2018) Collective animal migration, ***Current Biology*** 28(17), R976-R980.

[114] Pinkoviezky, I., Couzin, I.D. & Gov, N.S. (2018) Collective conflict resolution in groups on the move, ***Physical Review E*** 97, 032304.

[113] Nagy, M., Couzin, I.D., Fiedler, W., Wikelski, M. & Flack, A. (2018) Syn-



chronisation, coordination and collective sensing during thermalling flight of freely-migrating white storks, **Philosophical Transactions of the Royal Society B** 373(1746), 20170011.

[112] Berdahl, A.M., Kao, A.B., Flack, A., Westley, P.A.H., Codling, E.A., Couzin, I.D., Dell, A.I. and Biro, D. (2018) Collective animal navigation and migratory culture: from theoretical models to empirical evidence. **Philosophical Transactions B** 373(1746), 20170009.

[111] Delcourt, J., Miller, N.Y., Couzin, I.D. and Garnier, S. (2018) Methods for the effective study of collective behaviour in a radial arm maze, **Behavior Research Methods** <https://doi.org/10.3758/s13428-018-1024-9>

[110] Torney, C.J., Hopcraft, G.C., Morrison, T.A., Couzin, I.D. & Levin, S.A. (2018) From single steps to mass migration: The problem of scale in the movement ecology of Serengeti wildebeest, **Philosophical Transactions of the Royal Society B** 373(1746), 20170012.

2017

[109] Jolles, J.W., Boogert, N.J., Sridhar, V.H., Couzin, I.D. and Manica, A. (2017) Consistent individual differences drive collective behaviour and group functioning of schooling fish. **Current Biology** 27(18), 2862-2868.

[108] Stowers, J., Hofbauer, M., Bastien, R., Griessner, J., Higgins, P., Farooqui, S., Fischer, R.M., Nowikovsky, K., Haubensack, W., Couzin, I.D., Tessmar-Raible, K. and Straw, A. D. (2017) Virtual reality for freely moving animals, **Nature Methods** 14(10), 995-1002.

[107] Joshi, J., Couzin, I.D., Levin, S.A. & Guttal, V. (2017) Mobility can promote the evolution of co-operation via emergent self-assortment dynamics, **PLoS Computational Biology**, 13(9), e1005732.

[106] Strandburg-Peshkin, A., Farine, D.R., Crofoot, M. C. & Couzin, I.D. (2017) Both habitat and social factors shape individual decisions and emergent group structure in baboons collective movement, **eLife** 6, e19505.

[105] Guayasamin, O. L., Couzin, I. D. & Miller, N.Y. (2016) Behavioural plasticity across social contexts is regulated by the directionality of inter-individual differences, **Behavioural Processes** 141, 196-204.

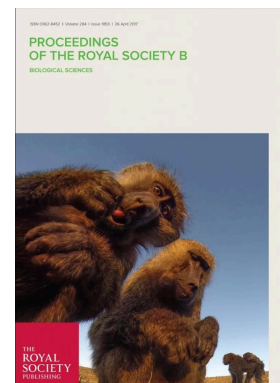
[104] Farine, D.R., Strandburg-Peshkin, A., Couzin, I.D., Berger-Wolf, T & Crofoot, M (2017) Individual variation in local interaction rules can explain emergent patterns of spatial organisation in wild baboons. **Proceedings of the Royal Society B** 284(1853), 20162243.

2016

[103] Hartnett, A.T., Schertzer, E., Levin, S.A. & Couzin, I.D. (2016) The role of heterogeneous preference and local nonlinearity in consensus decision-making, **Physical Review Letters** 116(3), 038701.

[102] Stein, M., Janetzko, H., Breitzkreutz, T., Seebacher, D., Schreck, T., Grossniklaus, M., Couzin, I. D. & Keim, D.A. (2016) Director's cut: Analysis and annotation of football matches. **IEEE Computer Graphics and Applications** 36(5), 50-60.

[101] Rieucau, G., Holmin, A.J., Castillo, J.C., Couzin, I.D. & Handegard, N-O. (2016) School-level structural and dynamic adjustments to perceived risk promote efficient information transfer and collective evasion in herring, **Animal Behaviour** 117, 69-78.



[100] Berdahl, A., Westley, P.A.H., Couzin, I.D., Levin, S.A. & Quinn, T.P. (2014) A collective navigation hypothesis for homeward migration in anadromous salmonids. **Fish and Fisheries** 17(2), 525-542.

[99] Axtell, R., Kirman, A., Couzin, I. D., Fricke, D., Hens, T., Hochberg, M. E., ... & Sethi, R. (2016). Challenges of integrating complexity and evolution into economics. In *Complexity and evolution: Toward a new synthesis for economics* (pp. 65-84). The MIT Press.



2015

[98] Hein, A. M., Rosenthal, S.B., Hagstrom, G.I., Berdahl, A., Torney, C.J. & Couzin, I.D. (2015) The evolution of distributed sensing and collective computation in animal populations, **eLife** e10955.

[97] Reid, C.R., Lutz, M.J., Powell, S., Couzin, I.D. & Garnier, S. (2015) Army ants dynamically adjust living bridges in response to a cost-benefit tradeoff, **PNAS** 112(49), 15113-15118.

[96] Swain, D.T., Couzin, I.D. & Leonard, N.E. (2015) Coordinated speed oscillations in schooling killifish enrich social communication, **Journal of Nonlinear Science** 25(5), 1077-1109.

[95] Strandburg-Peshkin, A, Farine, D.R., Couzin, I.D. & Crofoot, M.C. (2015) Shared decision-making drives collective movement in wild baboons, **Science** 348(6241), 1358-1361.

[94] Strandburg-Peshkin, A, Farine, D.R., Couzin, I.D. & Crofoot, M.C. (2015) The wisdom of baboon decisions - response, **Science** 349(6521), 935-936.

[93] Rosenthal, S.B., Twomey, C.R., Hartnett, A., Wu, H.S., & Couzin, I.D. (2015) Revealing the hidden networks of social interactions in mobile animal groups allows prediction of complex behavioral contagion, **PNAS** 112(15), 4690-4695.

[92] Ioannou, C.C, Singh, M.A.N. & Couzin, I.D. (2015) Potential leaders trade off goal-oriented and socially-oriented behavior in mobile animal groups, **The American Naturalist** 186(2), 284-293.

[91] Hills, T.T., Todd, P.M., Laser, D. Redish, A.D., Couzin, I.D. and the Cognitive Search Research Group (2015) Exploration versus exploitation in space, mind and society, **Trends in Cognitive Sciences** 19(1), 46-54.

[90] Torney, C.J., Lorenzi, T., Couzin, I.D. & Levin, S.A. (2015) Information processing and the evolution of unresponsiveness in collective systems, **Journal of the Royal Society Interface** 12(103), 20140893.

2014

[89] Hofmann, H.A., Beery, A.K., Blumstein, D.T., Couzin, I.D., Earley, R.L., Hayes, L.D., Hurd, P.L., Lacey, E.A., Phelps, S.M., Solomon, N.G., Taborsky, M., Young, I.J. & Rubenstein, D.R. (2014) An evolutionary framework for studying mechanisms of social behavior. **Trends in Ecology and Evolution** 29(10), 581-589.

[88] Woods, M.L., Carmona-Fontaine, C., Barnes, C.P., Couzin, I.D., Mayor, R. & Page, K. (2014) Directional collective cell migration emerges as a property of cell interactions **PLoS ONE** 9, e104969

[87] Kao, A., Miller, N., Torney, C., Hartnett, A. & Couzin, I.D. (2014) Collective learning and optimal consensus in animal groups, **PLoS Computational Biology** 10(8), e1003762.

[86] Liu, P., Safford, H.R., Couzin, I.D. & Kevrekidis, I.G. (2014) Coarse-grained variables for particle-based models: diffusion maps and animal swarming simulations, **Computational Particle Mechanics**, available early online.

[85] Treuer, T., Altosaar, J., Hartnett, A., Twomey, C., Dobson, A., Wilcove, D. & Couzin, I.D. (2014) Machine learning in audio taxonomy: Quantifying biodiversity and habitat recovery through rainforest audio recordings, **The Journal of the Acoustical Society of America** 135(4), 2368.

[84] Gallup, A.C., Chong, A., Kacelnik, A. & Couzin, I.D. (2014) The influence of emotional facial expressions on gaze-following in grouped and solitary pedestrians, **Scientific Reports** 4, 5794.

[83] Dell, A.I., Bender, J.A., Branson, K., Couzin, I.D., dePolavieja, G.G., Noldus, L.P.J., Perez-Escudero, A., Perona, P., Straw, A.D., Wikelski, M. & Brose, U. (2014) Automated image-based tracking and its application in ecology. **Trends in Ecology and Evolution** 29(7), 417-428.

[82] Kao, A.B. & Couzin, I.D. (2014) Decision accuracy in complex environments is often maximized by small group sizes, **Proceedings of the Royal Society of London Series B** 281(1784), 20133305.

2013

[81] Berdahl, A., Torney, C.J., Ioannou, C.C., Faria, J., & Couzin, I.D. (2013) Emergent sensing of complex environments by mobile animal groups. **Science** 339(6119), 574-576.

[80] Strandburg-Peshkin, A., Twomey, C.R., Bode, N.W., Kao, A.B., Katz, Y., Ioannou, C.C., Rosenthal, S.B., Torney, C.J., Wu, H., Levin, S.A. & Couzin, I.D. (2013) Visual sensory networks and effective information transfer in animal groups. **Current Biology** 23(17), R709-711.

[79] Miller, N., Garnier, S. & Couzin, I.D. (2013) Both information and social cohesion determine collective decisions in animal groups, **PNAS** 110(13), 5263-5268.

[78] Coburn, L., Cerone, L., Torney, C., Couzin, I.D. & Neufeld, Z. (2013) Tactile interactions lead to coherent motion and enhanced chemotaxis of migrating cells, **Physical Biology** 10(4), 046002.

[77] Kolpas, A., Busch, M., Li, H., Couzin, I.D., Petzold, L. & Moehlis, J. (2013) Spatial position and influence in swarms, **PLoS ONE** 8(3), e58525.

[76] Torney, C., Levin, S.A. & Couzin, I.D. (2013) Decision accuracy and the role of spatial interactions in social dynamics, **Journal of Statistical Physics** 151, 203-217.

[75] Garnier, S., Murphy, T., Lutz, M., Hurme, E., Leblanc, S. & Couzin, I.D. (2013) Stability and responsiveness in a self-organized living architecture. **PLoS Computational Biology** 9(3), e1002984.

[74] Tunstrom, K., Katz, Y., Ioannou, C.C., Huepe, C., Lutz, M., & Couzin, I.D. (2013) Collective states, multistability and transitional behavior in animal groups. **PLoS Computational Biology** 9(2), e1002915.

[73] Shaw, A.K. & Couzin, I.D. (2013) Migration or residency? The evolution of movement behavior and information usage in seasonal environments. **The American Naturalist** 181(1), 114-121.

[72] Perez-Escudero, A., Miller, N., Hartnett, A.T., Garnier, S., Couzin, I.D. & de Polavieja, G. (2013) Estimation models describe well collective decisions among three options. **PNAS** 110(37), E3466-3467.

2012

[71] Ioannou, C.C., Guttal, V. & Couzin, I.D. (2012) Predatory fish select for coordinated collective motion in virtual prey, **Science** 337(6099), 1212-1215.

- Accompanying Perspective of our paper by Bill Romey "Real fish attack simulated plankton" **Science** 337(6099), 1181-1182.

- [70] Lopez, U., Gaitrais, J., Couzin, I.D. & Theraulaz, G. (2012) From behavioral analyses to models of collective motion in fish schools, **Interface Focus** 2(6), 693-707.
- [69] Stephens, D.W., Couzin, I.D. & Giraldeau, L.-A. (2012) Ecological and behavioral approaches to search behavior. In “Cognitive Search: Evolution, Algorithms and the Brain” (Eds. P.M. Todd, T.T. Hill and T.W. Robins), MIT Press, Boston.
- [68] Mishra, S., Tunstrom, K., Couzin, I.D. & Huepe, C. (2012) Collective dynamics of self-propelled particles with variable speed. **Physical Review E**, 86, 011901.
- [67] Guttal, V., Romanczuk, P., Simpson, S.J. & Couzin, I.D. (2012) Cannibalism as a driver of the evolution of behavioral phase polyphenism in locusts. **Ecology Letters** 15, 1158-1166.
- [66] Handegard, N.O., Leblanc, S., Boswell, K., Tjostheim, D. & Couzin, I.D. (2012) Interactions between group hunting predators and schooling prey in a natural marine environment. **Current Biology** 22(13), 1213-1217.
- Accompanying Dispatches article by Graeme Ruxton “Collective dynamics - both predators and prey get help from their friends”
- [65] Gallup, A.C., Hale, J.J., Garnier, S., Sumpter, D.J.T., Kacelnik, A., Krebs, J. & Couzin, I.D. (2012) Visual attention and information transfer in human crowds. **PNAS** 109(19), 7245-7250.
- [64] Gallup, A.C., Chong, A. & Couzin, I.D. (2012) The directional flow of visual information transfer between pedestrians. **Biology Letters** 8(4), 520-522.
- [63] Swain, D.T., Couzin, I.D. & Leonard, N.E. (2012) Real-time feedback-controlled robotic fish for behavioral experiments with schooling fish. **Proceedings of the IEEE** 100(1), 150-163.
- [62] Bazazi, S., Bartumeus, F., Hale, J.J., Holmin, A.J. & Couzin, I.D. (2012) Intermittent motion in desert locusts: behavioral complexity in simple environments. **PLoS Computational Biology** 8(5), e1002498.
- [61] Bazazi, S., Pfennig, K.S., Handegard, N.O. & Couzin, I.D. (2012) Collective vortex formation and foraging in polyphenic spadefoot toad tadpoles. **Behavioral Ecology and Sociobiology** 66(6), 879-889.
- [60] Leonard, N.E., Shen, T., Nabet, B., Scardovi, L., Couzin, I.D. & Levin, S.A. (2012) Decision versus compromise for animal groups in motion. **PNAS** 109(1), 227-232.

2011

- [59] Couzin, I.D., Ioannou, C.C., Demirel, G., Gross, T., Torney, C.J., Hartnett, A., Conradt, L., Levin, S.A. & Leonard, N.E. (2011) Uninformed individuals promote democratic consensus in animal groups. **Science** 323(6062), 1578-1580.
- Accompanying Perspective of our paper by West and Bergstrom “Can ignorance promote democracy?” *Science* 323(6062), 1503-1504.
- [58] Katz, Y., Ioannou, C.C., Tunstrom, K., Huepe, C. & Couzin, I.D. (2011) Inferring the structure and dynamics of interactions in schooling fish. **PNAS** 108(46), 18720-18725.
- [57] Torney, C., Berdahl, A. and Couzin, I.D. (2011) Signalling and the evolution of cooperative foraging in dynamic environments, **PLoS Computational Biology** 7(9), e1002194.
- [56] Frewen, T.A., Couzin, I.D., Kolpas, A., Moehlis, J., Coifman, R. & Kevrekidis, I. O. (2011) Coarse collective dynamics of animal groups. **Lecture Notes in Comp. Sci. & Engineering** 75, 299-309.

[55] Guttal, V., & Couzin, I.D. (2011) Leadership, collective motion and the evolution of migratory strategies. **Communicative and Integrative Biology** 4, 294-298.

[54] Abbot, P...Couzin, I.D...et al. (137 authors) (2011) Inclusive fitness theory and eusociality. **Nature** 471(7339), e1-e4.

[53] Pillot, M-H., Gautrais, J., Arrufat, P., Couzin, I.D., Bon, R. & Deneubourg, J-L. (2011) Scalable rules for effective decision-making in animal groups. **PLoS ONE** 6(1), 14487.

[52] Bazazi, S., Romanczuk, P., Thomas, S., Schimansky-Geier, L., Hale, J. J., Miller, G. A., Sword, G.A., Simpson, S.J. and Couzin, I.D. (2011) Nutritional state and collective motion: from individuals to mass migration. **Proceedings of the Royal Society of London Series B** 278(1704), 356-363.



[51] Sueur, C., Petit, O., Deneubourg, J-L., & Couzin, I.D. (2011) Group size, grooming and social cohesion in primates: a modeling approach based on group structure. **Journal of Theoretical Biology** 273(1), 156-166.

2010

[50] Guttal, V. & Couzin, I.D. (2010) Social interactions, information use and the evolution of collective migration. **PNAS** 107(37), 16172-16177.

- 'From the Cover', 'This Week in PNAS' and PNAS Commentary by Simpson and Sword "Evolving Migration" **107**(39), 16753-16754.

[49] Torney, C., Levin, S.A. & Couzin, I.D. (2010) Specialization and evolutionary branching within migratory populations. **PNAS** 107(47), 20394-20399.

- Recommended by 'Faculty of 1000'

[48] Couzin, I.D. (2010) Complex systems: An informative itinerary. **Science** 328(5977), 430.

[47] Bazazi, S., Ioannou, C. C., Simpson, S. J., Sword, G. A., Torney, C. & Couzin, I.D. (2010) The social context of cannibalism in Mormon cricket collective movement. **PLoS ONE** 5(12), e15118.

[46] Sueur, C., Deneubourg, J-L., Petit, O. & Couzin, I.D. (2010) Differences in nutrient requirements imply a non-linear emergence of leaders in animal groups. **PLoS Computational Biology** 6(9), 1000917.

[45] Faria, J. J., Dyer, J. R. G., Clement, R., Couzin, I.D., Holt, N., & Ward, A. J., et al. (2010) A novel method for investigating the collective behavior of fish: introducing "Robofish". **Behavioral Ecology and Sociobiology** 64(8), 1211-1218.

[44] Escudero, C., Yates, C. A., Buhl, J., Couzin, I.D., Erban, R., Kevrekidis, I. G., & Maini, P. K. (2010) Ergodic directional switching in mobile insect groups. **Physical Review E** 82(1), 011926.

[43] Couzin, I.D. and King, A.J. (2010) Animal group movements. In: *Encyclopedia of Animal Behavior*, Breed, M. and Moore, J. (Eds.), Elsevier.

[42] Simpson, S. J., Raubenheimer, D., Charleston, M.A., Clissold, F. J., Couzin, I.D., & Clements, K. D., et al. (2010) Modelling nutritional interactions: from individuals to communities. **Trends in Ecology and Evolution** 25(1), 53-60.

2009

[41] Torney, C., Neufeld, Z. & Couzin, I.D. (2009) Context-dependent interaction leads to emergent search behavior in social aggregates. **PNAS** 106(52), 22055-22060.

[40] Yates, C.A., Erban, R., Escudero, C., Couzin, I.D., Buhl, J., & Kevrekidis, I. G., et al. (2009). Inherent noise can facilitate coherence in collective swarm motion. **PNAS** 106(14), 5464-5469.

[39] Conradt, L., Roper, T.J., Couzin, I.D. & Krause, J. (2009) "Leading according to need" in self-organizing groups. **The American Naturalist** 173(3), 304-312.

[38] Romanczuk, P., Couzin, I.D. & Schimansky-Geier, L. (2009) Collective motion of animal groups due to escape and pursuit behavior. **Physical Review Letters** 102(1), doc# 010602.

[37] Deisboeck, T. & Couzin, I.D. (2009) Collective behavior in cancer cell populations. **BioEssays** 31(2), 190-197.

[36] Couzin, I.D. & Laidre, M.E. (2009) Fission-fusion populations. **Current Biology** 19(15), r633-r635.

[35] Dyer, J.R.G., Johansson, A., Helbing, D., Couzin, I.D. & Krause, J. (2009) Leadership, consensus decision making and collective behaviour in human crowds. **Philosophical Transactions of the Royal Society of London, Series B** 364(1518), 781-78.

- Top 10 most cited articles in *Phil. Trans. R. Soc. Lond B.* in 2009

[34] Nabet, B., Leonard, N.E., Couzin, I.D. & Levin, S.A. (2009) Dynamics of decision-making in animal group motion. **Journal of Nonlinear Science** 19(4), 399-435.

[33] Erra, U., Frola, B., Scarano, V. & Couzin, I.D. (2009) An efficient GPU implementation for large scale individual-based simulation of collective behavior, **High Performance Computational Systems Biology**, 51-58.

[32] Couzin, I.D. (2009) Collective cognition in animal groups. **Trends in Cognitive Sciences** 13(1), 36-43.

2008

[31] Sumpter, D.J.T., Krause, J., James, R., Couzin, I.D. & Ward, A.J.W. (2008) Consensus decision-making by fish. **Current Biology** 18(22), 1773-1777.

[30] Bazazi, S., Buhl, J., Hale, J.J., Anstey, M.L., Sword, G.A., Simpson, S.J. & Couzin, I.D. (2008) Collective motion and cannibalism in locust marching bands. **Current Biology** 18(10), 735-739.

- Recommended by 'Faculty of 1000' – Rating II, Exceptional.

[29] Ward, A.J., Sumpter, D.J.T., Couzin, I.D., Hart, P.J.B. & Krause, J. (2008) Quorum decision-making facilitates information transfer in fish shoals. **PNAS** 105(19), 6948-6953.

[28] Sumpter, D.J.T., Buhl, J., Biro, D. & Couzin, I.D. (2008) Information transfer in moving animal groups, **Theory in Biosciences** 127(2), 177-186.

[27] Dyer, J.R.G., Ioannou, C.C., Morrell, L.J., Croft, D.P., Couzin, I.D., Waters, D.A. & Krause, J. (2008) Consensus decision-making in human crowds, **Animal Behaviour** 75, 461-470.

[26] Roditakis, E., Couzin, I.D., Franks, N.R. & Charnley A.K. (2008) Effects of *Lecanicillium longisporum* infection development on the behaviour of the green peach aphid *Myzus persicae*, **Journal of Insect Physiology** 54(1), 128-13624.

[25] Lu, J., Liu, J., Couzin, I.D. & Levin, S.A. (2008) Emerging collective behaviors of animal groups, **Proc. World Congress on Intelligent Control and Automation**, 1060-1065.



2007

[24] [Couzin, I.D.](#) (2007) Collective minds. **Nature** 455, 715.

[23] Paley, D.A., Leonard, N.A., Sepulchre, R.J. & [Couzin, I.D.](#) (2007) Spatial models of bistability in biological collectives, **Proc. IEEE Conf. on Decision and Control**, 4851-4856

[22] Swain, D.T., Leonard, N.E., [Couzin, I.D.](#), Kao, A. & Sepulchre, R.J. (2007) Alternating spatial patterns for coordinated group motion, **Proc. IEEE Conf. on Decision and Control**, 12-14.

2006

[21] Buhl, J., Sumpter, D.J.T, [Couzin, I.D.](#), Hale, J., Despland, E., Miller, E. & Simpson, S.J. (2006) From disorder to order in marching locusts. **Science** 312, 1402-1406.

- Selected for 'Research Highlights' in *Nature*, 'Perspectives' article, D. Grunbaum "Align in the sand" *Science* **312**, 1320-1322.

[20] [Couzin, I.D.](#) (2006) Behavioural ecology: social organization in fission-fusion societies. **Current Biology** 16, R169-171.

[19] Simpson, S.J., Sword, A.G., Lorch, P.D. & [Couzin, I.D.](#) (2006) Cannibal crickets on a forced march for protein and salt. **PNAS** 103, 4152-4156.

- Selected for 'News and Views' in *Nature*, Recommended by 'Faculty of 1000'.

[18] Nabet, B., Leonard, N.E., [Couzin, I.D.](#) & Levin, S.A. (2006) Leadership in animal group motion: a bifurcation analysis, **Proc. 17th Symposium on Mathematical Theory of Networks and Systems**, 1-14

[17] [Couzin, I.D.](#), James, R., Croft, D.P. & Krause, J. (2006) Social organization and information transfer in schooling fish *Fish Cognition and Behaviour*.

2005 and earlier

[16] [Couzin, I.D.](#), Krause, J., Franks, N.R. & Levin, S.A. (2005) Effective leadership and decision making in animal groups on the move. **Nature** 433, 513-516.

[15] Wrege, P., Wikelski, M., Mandel, J.T. Rassweiler, T & [Couzin, I.D.](#) (2005) Antbirds parasitize foraging army ants. **Ecology** 86(3), 555-559.

[14] Hensor, E.M.A., [Couzin, I.D.](#), James, R. & Krause, J. (2005) Modelling density-dependent fish shoal distributions in the laboratory and field. **Oikos** 110, 344-352.

[13] Hoare, D.J., [Couzin, I.D.](#), Godin, J-G. & Krause, J. (2004). Context-dependent group size choice in fish. **Animal Behaviour** 67, 155-164.

[12] [Couzin, I.D.](#) & Krause, J. (2003) Self-organization and collective behavior in vertebrates. **Advances in the Study of Behavior** 32, 1-75.

[11] [Couzin, I.D.](#) & Franks, N.R. (2003) Optimized traffic flow and self-organized lane formation in ants. **Proceedings of the Royal Society of London, Series B** 270, 139-146.

- Featured as 'Editor's Choice' in *Science*

[10] Croft, D. P., Arrowsmith, B. J., Bielby, J., Skinner, K., White, E., [Couzin, I.D.](#), Magurran, A. E., Ranmarine, I. & Krause, J. (2003) Mechanisms underlying shoal composition in the Trinidadian guppy (*Poecilia reticulata*) **Oikos** 100, 429-438.

[9] Croft, D. P., Krause, J., [Couzin, I.D.](#) & Pitcher, T. J. (2003) When fish schools meet: outcomes for evolution and fisheries **Fish and Fisheries** 4, 138-146.



[8] Couzin, I.D., Krause, J., James, R., Ruxton, G.D. & Franks, N.R., (2002) Collective memory and spatial sorting in animal groups. **Journal of Theoretical Biology** 218, 1-11.

- Recommended by Faculty of 1000
- Top 5 most cited articles of the decade (1999-2010), Animal Behavior Research, Europe

[7] Ward, A. J. W., Hoare, D. J., Couzin, I.D. & Krause, J. (2002) The effects of parasitism and body length on positioning within wild fish shoals **Journal of Animal Ecology** 71(1), 10-14.

[6] Couzin, I.D. & Krause, J. (2001) The social organization of fish schools **Advances in Ethology** 36, 64.

[5] Hoare, D. J., Ward, A., Couzin, I.D., Croft, D. & Krause, J. (2001) A grid-net technique for the analysis of fish positions in free-ranging fish schools **Journal of Fish Biology** 59(6), 1667-1672.

[4] Roditakis, E., Couzin, I.D., Barlow, K., Franks, N. R. & Charnley, A. K. (2000) Improving secondary pick up of insect fungal pathogen conidia by manipulating host behavior **Annals of Applied Biology** 137, 329-335.

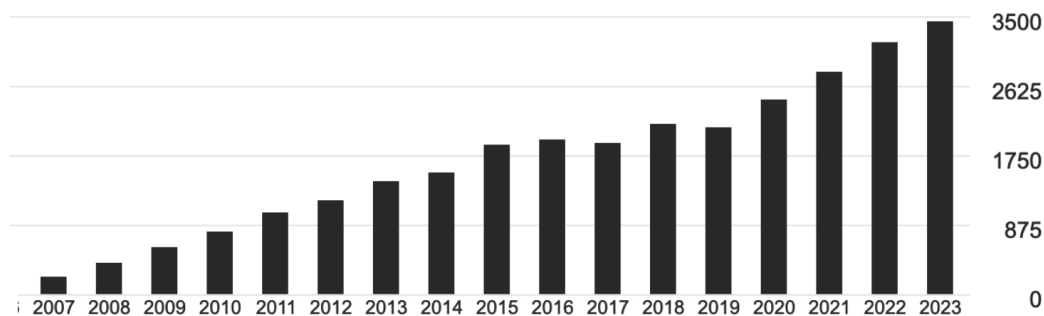
[3] Boi, S., Couzin, I.D., Del Buono, N., Franks, N. R. & Britton, N. F. (1999) Coupled oscillators and activity waves in ant colonies **Proceedings of the Royal Society of London Series B** 266, 371-378.

[2] Spencer, A. J., Couzin, I.D. & Franks, N. R. (1998) The dynamics of specialization and generalization within biological populations **Journal of Complex Systems** 1, 114-128.

[1] Ritchie, M. G. R., Couzin, I.D. & Snedden, W. A. (1995) What's in a song? Female bushcrickets discriminate against the song of older males **Proceedings of the Royal Society of London Series B** 262, 21-27.

Citation analysis (via Google Scholar)

Citations: 32, 589



Most cited papers:

- Couzin et al. (2005) *Nature*, 3121 citations
- Couzin et al. (2002) *J.Theor Biol.*, 2482 citations
- h-index = 79
- i10-index = 152

Funding

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The Centre for the Advanced Study of Collective Behaviour (PI, with Co-PIs Oliver Deussen and Urs Fischbacher)

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ALLiance for organismal Interaction Analysis (ALIAS) (PI, with Oliver Deussen Co-PI)

Agency: Regionale Forschungallianzen in Baden-Württemberg Award: €0.9 Million

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Collective animal behaviour (Structure and Innovation Fund for Research) (PI)

Agency: Ministry of Science, Research and the Arts Baden-Württemberg Award €1.5 Million

Duration: From 2014

Center for Reality Mining of Animal-Human Systems (PI)

Agency: Humboldt-Princeton partner Program Award: \$0.05 Million

Duration: 10/1/2014 - 9/30/15

Sensory Networks and Collective Information Processing in Animal Groups (PI)

Agency: National Science Foundation Award: \$0.32 Million

Duration: 02/01/2014 - 02/01/2018

Bio-inspired scalable collaboration of autonomous vehicles that sense, learn and decide (Co-PI with Naomi Leonard, Princeton and Fumin Zhang, Georgia Institute of Technology.

Agency: Office of Naval Research Award: \$2.23 Million

Duration: 07/01/2014-6/30/2018

Robustness and Adaptability in Collective Behavior (Co-PI with Simon Levin and Naomi Leonard)

Agency: Army Research Office Award: \$0.36 Million

Duration: 07/01/2014-6/30/2017

Information processing and computation in fish groups (co-PI with Gasper Tkacik, Austria and Elad Schneidman, Weizmann Institute, Israel)

Agency: Human Frontiers Science Program Award: \$1.05 Million

Duration: 05/01/2012 - 04/31/2015

CNH: Social-ecological complexity and adaptation in marine systems (Co-PI with Simon A. Levin),

Agency: National Science Foundation Award: \$1.5 Million

Duration: From 10/01/2012 - 10/01/2016

The Perceptual Basis for Collective Behavior in a Model Vertebrate (PI; Co-PI is Esteban Fernandez-Juricic, Purdue University)

Agency: National Science Foundation

Duration: From 10/01/2012 - 10/01/2013

Award: \$0.18 Million

A Platform for Data-Parallel GPU Computing at Princeton (Co-PI with David August, James Stone and Jeroen Tromp),

Agency: National Science Foundation

Duration: from 10/01/2012

Award \$0.35 Million

Experimental and Theoretical Analysis of Collective Dynamics of Swarming Systems (PI)

Agency: National Science Foundation (NSF)

Duration: 09/03/2009 – 09/30/2013

Award: \$0.54 Million

Coordination and collective decision-making (co-PI with Simon A. Levin and Naomi E. Leonard)

Agency: Army Research Office

Duration: 08/17/2011 - 06/16/2013

Award: \$0.42 Million

Bio-Inspired Autonomous Control for Optimal Exploration and Exploitation in Marine Environments (Co-PI with Naomi Leonard, Princeton University, and Fumin Zhang, Georgia Tech)

Agency: Office of Naval Research (ONR)

Duration: 06/01/2009 – 05/31/2014

Award: \$3.0 Million

Collective Behavior and Social Transmission of Information in Human Crowds (PI)

Agency: Oxford Risk Research and Analyses Ltd.

Duration: 09/15/2010 – 09/14/2012

Award: \$0.17 Million

Collective Motion and Decision-Making in Animal Groups (PI)

Agency: Kinship Foundation, Searle Scholars Program

Duration: 07/01/2008 – 06/30/2011

Award: \$0.3 Million

Plenary/Keynote/Distinguished/Public Lectures (from 2007)

- 2023 Plenary Speaker, Dubrovnik Conference on Cognitive Science, Croatia
SciFoo, GoogleX, USA
Plenary Speaker, Workshop on Collective Behaviour, University of Cambridge, UK
Plenary Speaker, Collective Intelligence Symposium, Santa Fe Institute, USA
Keynote Speaker, the 22nd International Conference on Autonomous Agents and Multiagent Systems (AAMAS), London, UK
The Munich Neuroscience Lectures, Germany
Plenary Address, Max Planck Institute of Intelligent Systems Annual Retreat, Schluchsee, Germany
Public Lecture, "Of Fish and fascists", Science and Cocktails, Amsterdam, Netherlands
The Faculty Club Lecture, RWTH Aachen University, Aachen, Germany
- 2022 Plenary Speaker, Inaugural Symposium, The Price Centre for the Social Brain, Rockefeller University, NYC, USA
Plenary Speaker, SIAM Conference on the Life Sciences, Pittsburgh, USA
Keynote Address, NIH Brain Behavior and Synchronization Workshop, Bethesda, USA
- 2021 Keynote Speaker, Conference on Complex Systems, Lyon, France
Keynote Speaker, International Forum on Advanced Environmental Sciences and Technology (iFAST) in honor of Simon Levin's 80th birthday

- Plenary Speaker, European Brain and Behavior Society Meeting, EPFL, Switzerland
- 2020 Keynote Address, New Perspectives for Science, Tübingen, Germany
Keynote Speaker, Society for Experimental Biology Meeting, Prague, Czech Republic
Plenary Lecture, Advanced Course on Systems Biology, Innsbruck, Austria
Plenary Lecture, German Ethological Society Meeting, Tübingen, Germany
Keynote Address, Biology20, Fribourg, Switzerland
- 2019 Annual Distinguished Lecture, Cognitive, Computational and Systems Neuroscience (CCSN), Washington University in St. Louis
Keynote Speaker, VIII. Complexitat, Barcelona, Spain
SciFoo, GoogleX, USA
Presentation to the Governing Board of the Wellcome Trust, Munich
Plenary Speaker, Complex Systems Summer School, Bari, Italy
Public Lecture, SAGE Centre for the Study of the Mind at the University of California Santa Barbara
Plenary Speaker, VIP Opening Event, TownHall Europe, The Davignon Center for New Leadership, Brussels
Plenary Speaker, 20th Anniversary of the Ecology and Evolutionary Biology Interdisciplinary Program at Texas A&M University
Plenary Speaker, Computational Social Science - Quo Vadis, ETH Zurich
Plenary Speaker, Complexitat Day, Barcelona
Keynote Speaker, Life 2019, Utrecht, Netherlands
- 2018 Public Lecture, Centre for Interdisciplinary Research (ZiF), University of Bielefeld, Germany
Plenary Speaker, 4th International Conference on Computational Social Science, Northwestern University, USA.
Plenary Speaker, PINC Conference, Netherlands.
Opening Plenary Lecture, CAJAL Advanced Course in Behavior and Neural Systems, Champalimaud Centre, Lisbon, Portugal
Plenary Lecture, Complexity Science Hub, Vienna, Austria
Keynote Speaker, International Summit on Social Cognition in Humans and Robots, Hamburg, Germany
Session Chair, Friends of Europe high-level European Union roundtable, Brussels, Belgium
Keynote Speaker, International Conference on Computational Social Science (IC2S2), Kellogg School of Management at Northwestern University, USA
- 2017 Opening Plenary Address, Ecology Across Borders (the Joint Annual meeting of the British Ecological Society, The Ecology Society of Germany, Austria and Switzerland, The Netherlands Ecological Society and the European Ecological Federation)
The Evening Keynote Address, Boston Consulting Group Alumni Meeting, Munich, Germany
The Odum Lecture, University of Georgia, USA
The Bowen Lecture, Johns Hopkins Campus, Rockville, USA
Public Lecture, Science Meets Music, Benjamin Hall, Jupiter, FL, USA
Plenary Speaker, The 50th Anniversary Symposium of the Fisheries Society of the British Isles, University of Exeter, UK
Public Lecture, Mathematical Models in Ecology and Evolution, City University of London, London, UK
The Complex Systems Public Lecture, University of Sheffield, Sheffield, UK
- 2016 Plenary Speaker, The European Conference of Behavioural Biology, Vienna
Keynote address, the 6th Brain and Behavior Meeting, Haifa, Israel
German Academy of Sciences (Leopoldina) Plenary, Modeling Nature and Society, Weimar

- Plenary Speaker, ETH Zurich / Max Planck Institute Workshop: Design and Coordination of Micro- to macro-scale Swarms
BIG Seminar, University of Lausanne, Switzerland
- 2015 Director's Seminar, Howard Hughes Medical Institute (HHMI), Janelia Research Campus
Opening Keynote Speaker and Closing Address, Frielandtage, German Primate Centre, Göttingen
Plenary Speaker, Lake Como Summer School on Complexity, Italy
Plenary Speaker, Physics of Emergent Behaviour, London Science Museum
SciFoo, Googleplex, Mountainview, California
Plenary Speaker, The Champalimud Neuroscience Symposium, Lisbon, Portugal
Directors' Seminar, Max Planck Institute for Intelligent Systems, Tübingen, Germany
Plenary Speaker, Animal Social Networks in Behavioral Research, University of Neuchatel, Switzerland
Plenary Speaker, AniMove workshop, Max Planck Institute for Ornithology, Radolfzell, Germany
Ernst Strüngmann Forum, Complexity and Evolution
Plenary Speaker, The Scottish Informatics and Computer Science Alliance Workshop on Computational Ecology, University of Edinburgh, Scotland, UK
- 2014 Plenary Speaker, Max Planck International Research School in Organismal Biology, Grand Challenges Symposium, Konstanz, Germany
Plenary Speaker, The Joint Annual Meeting of the Society of Mathematical Biology and the Japanese Society for Mathematical Biology, Osaka, Japan
Keynote Address, 13th International Conference on Autonomous Agents and Multiagent Systems, Paris, France
The Institute of Science and Technology (IST) Distinguished Lecturer Series, Austria
Interdisciplinary Distinguished Seminar, Federal Laboratory for Analytical Sciences and the Army Research Office, NC, USA
Public Lecture and Keynote, Courant Research Center Symposium "Evolution of Social Behavior", University of Göttingen, Germany
Plenary Speaker, Interaction Networks and Collective Motion in Swarms, Flocks and Crowds, Helsinki, Finland
Plenary Speaker, Animal Behavior Society Meeting, Princeton, USA
- 2013 Benjamin Meaker Visiting Professorship, Institute for Advanced Studies, University of Bristol
BBC World Service & Wellcome Collection, "Exchanges at the Frontier, with Iain Couzin"
London, broadcast on BBC World Service
Public Lecture, Institute for Advanced Studies and Worldwide Universities Network, Bristol.
Plenary Speaker, Behaviour 2013, Newcastle, UK
Plenary Speaker, Animal Movement in Confined Space, University of Bristol, UK
Center for Immunity, Infection and Evolution Visiting Professor, University of Edinburgh
Howard Hughes Medical Research Institute, "Pathbreaking careers in science"
Keynote Address, Israel Society of Ecology and Environmental Sciences
The Jacob Marschak Speaker, UCLA Anderson School of Management
- 2012 The Murray Visiting Professorship, University of Sydney, Australia
Bernard Rothenberg Lecturer in Biology and Public Policy, PA
von Neumann Public Lecture, Institute for Discovery, University of Wisconsin Madison
National Geographic Live! Discussion between Nobel Laureate Mario Molina and National Geographic Explorer Iain D. Couzin
Keynote Address, Max Planck Symposium on Biodiversity, Berlin
N.J. Brainpower List

Public Lecture, Harvard Museum of Natural History
Keynote Address, NVIDIA GPU Technology Conference, San Jose
Visiting Professor, Tel Aviv University
Forum Speaker, Aspen Environment Forum, Aspen, Colorado
Keynote Address, NetSci 2012, Northwestern University
Plenary Lecture, Collective Intelligence 2012, MIT, Boston

- 2011 The Prosser Lecture, Dartmouth College
The Blundon Lecture, Nova Scotia
The Storer Lecture, UC Davis
BigThink Delphi Fellow
Plenary Lecture, Mathematical Biosciences Institute, Ohio State University
The Santa Fe Community Lecture, James A. Little Theatre, Santa Fe
- 2010 Public Lecture, Center for Science and Industry IMAX Theatre, Columbus, OH;
Distinguished Lecturer, Pacific Institute for Mathematical Sciences
Plenary Address, International Union for the Study of Social Insects (IUSSI),
Copenhagen
Keynote Address, Forum for the Future of Complex Systems, UNC, Charlotte
Distinguished Speaker, Pacific Institute for the Mathematical Sciences and Center for
Scientific Computing, Canada
- 2009 Mohammed Dahleh Distinguished Lecture, UC Santa Barbara
Top 10 most cited articles in 2009 (5th), *Phil. Trans. Roy. Soc. Lond. B*
Member of the Faculty of 1000 Biology
- 2008 The Marsden Lecture, McGill University, Canada
World Science Festival, NYC
Keynote Lecture, 'Formation flying, missions and technologies', European Space Agency
- 2007 Plenary speaker, International Conference on Complex Systems, Boston
Plenary speaker, Society for Industrial and Applied Mathematics (SIAM) Dynamics,
Snowbird, Utah
Plenary speaker, Dynamics Days, Boston
- 2003 Fellow of the Center for Interdisciplinary Research, University of Bielefeld

Further Invited lectures & Seminars

- 2023 Bernstein Conference Workshop 'Behavior Across the tree of Life', Berlin, Germany
Invited Speaker, Behaviour 2023, Bielefeld university, Germany
Worldwide VVTNS Neuroscience Seminar, Zoom
Cornell University Systems Thinking Conference, Zoom
Invited Speaker, From Individual to Group Decision Making, Weizmann Institute, Israel
Invited Speaker, Brainy Days in Jerusalem: The Future of Neuroscience, Israel
Serrapilheira/ICTP-SAIFR Training Program in Quantitative Biology and Ecology, San Paolo,
Brazil
- 2022 The Cambridge Centre for Physical Biology Seminar, Cambridge University, UK
From Individual to Collective Behaviour in Biological and Robotic Systems, International Cen
tre for Mathematical Sciences, Edinburgh, UK
- 2021 Intelligent-ish: how dumb agents do clever things, Sainsbury Wellcome Centre, University
College London, UK

- 2019 Special Seminar, HSRCB, MCB, Quant Bio and OEB, Harvard University
 Airbus BlueSky Participant, Flying Brains Workshop, Munich
 MIT Mechanical Engineering Colloquium, MIT, Boston
 Lecturer, Federation of European Neuroscience Societies (FENS) - Hertie Winter School on Neural Control of Instinctive and Innate Behavior
 Colloquium for Neuroinformatics, University of Zurich and ETH Zurich
 Invited Speaker, Nutritional Homeostasis Workshop, LIMES Institute, University of Bonn
 Lecturer, Summer School - Complex networks: theory, methods and applications, Lake Como School of Advanced Studies
 Invited Speaker, Computation in Biological Systems, Society for Experimental Biology Annual (SEB) Meeting, Seville, Spain
- 2018 Columbia University Integrative Animal Behavior Seminar
 Columbia University Neuroscience Seminar
 6th Annual Toulouse Economics and Biology Workshop, Toulouse, France
 Sölden Neuroscience Symposium, Sölden, Austria
 German Physical Society Meeting, Physics of Contagion Processes, Berlin, Germany
 Departmental Seminar, Neurobiology, Weizmann Institute of Science, Israel
 Speaker, International neuroscience Conference, Sölden, Austria
 Speaker, 6th Toulouse Economics and Biology Workshop, France
- 2017 MIT Colloquium on Brain and Cognition, MIT, Boston, USA
 Centre for Brain Science Seminar, Harvard University, USA
 Integrative Research Institute for the Life Sciences (ISI) Seminar, Humboldt University, Berlin, Germany
 Speaker, Max Planck - Chinese Academy of Sciences Conference on Mechanisms of Animal Behavior, Shanghai, China
 Speaker, World health Summit, Berlin, Germany
 Speaker, Biologing Symposium, Konstanz, Germany
 Speaker, Gordon Conference on Movement Ecology of Animals, Ventura, USA
 Heidelberg Institute for Theoretical Studies Colloquium, Heidelberg, Germany
 Speaker, Journal of Experimental Biology Symposium on the Evolution of Social Behavior, The Eiger, Switzerland
 The Munich Centre for Neurosciences Seminar, Germany
- 2016 Departmental Seminar, Zoology, Cambridge University, Cambridge, UK
 Centre for Integrative Biology Seminar, University of Toulouse, Toulouse, France
 Integrative Research Institute for Life Sciences Seminar, Humboldt University, Berlin
 Biology Symposium, University of St. Andrews, Scotland
 Interfacultative Munich Center for Neurosciences – Brain and Mind of the Ludwig-Maximilians-Universität
 Speaker, Transport Phenomena in Collective Dynamics, ETH Zurich, Switzerland
 Physics Colloquium, University of Konstanz, Konstanz, Germany
- 2015 Department Seminar, University of Exeter Cornwall Campus, UK
 CANMove Seminar, University of Lund, Sweden
- 2014 Interdisciplinary Center for Life Sciences and Engineering Seminar, Technion - Israel Institute of Technology
 Department of Biology Seminar, Bar Ilan University, Israel
 6th SIDEER Symposium, Exploring Real World Networks, From Genes to Ecosystems, Sede Boqer Campus of Ben Gurion University, Israel

Shalom Applebaum Memorial Lecture, The Hebrew University, Rehovot, Israel
Departmental Seminar, Department of Evolution, Systematics and Ecology, The Hebrew University, Jerusalem, Israel

- 2013 Invited speaker, Deutsche Physikalische Gesellschaft Spring Meeting, Regensburg
Biophysics seminar, MIT
Graduate Student Invited Speaker, Department of Ecology and Evolutionary Biology, Cornell.
Graduate Student Invited Speaker, Department of Neurobiology and Behavior, Cornell.
Google Science Fair
Complexity Group Seminar, Stanford University
Office of Naval Research, Science of Autonomy Meeting
Center for Immunity, Infection and Evolution Special Seminar, University of Edinburgh
Batsheva de Rothschild Seminar on Marine Life in the Flow, Eilat, Israel
Organizer, Animal Swarms Workshop, Israel
Graduate student invited speaker, Department of Ecology and Evolutionary Biology, University of Arizona
Biocomplexity seminar, Stanford University
- 2012 *Science* magazine Live Chat, The Science of Decision-Making
Society for Social Neuroscience Annual Meeting, New Orleans
Sensory Coding and the natural Environment, IST Austria
Center for Studies of Physics and Biology, The Rockefeller University
Champalimaud Foundation Ar Event, Lisbon
Neuroscience Seminar, Champalimaud Center for the Unknown, Lisbon, Portugal
Departmental Seminar, Biology, Texas A&M
Departmental Seminar, School of Biological Sciences, UT Austin
Princeton Institute In Computational Science and Engineering Conference
Graduate Student Invited Speaker, School of Biological Sciences, UC Irvine
Department of Neuroscience, UC Irvine
School of Biological Sciences, University of Sydney
Department of Mathematics, University of Pittsburgh
- 2011 Department of Organismic and Evolutionary Biology Seminar, Harvard University
Department of Psychology Seminar, Harvard University
PopTech Conference, Maine
Undergraduate Invited Speaker, Dept. of Biochemistry, University of Pennsylvania
Graduate Student Invited Speaker, Tufts University
Graduate Student Invited Speaker, University of Florida
Plenary Speaker, Insect self-organization and swarming, Math. Biosci. Institute, Ohio State University
Graduate Student Annual Invited Speaker, University of Florida
Woods Hole Marine Biology Laboratory, Woods Hole
Institute of Evolution, University of Haifa, Israel
Ecology, Evolutionary Biology and Behavior, Michigan State University
City University of New York, New York
Ernst Strungmann Forum, Frankfurt institute for Advanced Studies
- 2010 Microbes to Metazoans: Evolution of Social Behavior, Georgia Tech, 2010
Workshop in Honor of Danny Cohen's 80th Birthday, The Hebrew University, Jerusalem
BIOCOMPLEXITY XI, The evolution of cooperation, Bloomington, Indiana
EVOS Seminar, Binghamton University
Department of Biology, Tel Aviv University
Department of Physics, University of Maryland
Lecturer, Complex Systems Summer School, Santa Fe

- Workshop on Nonlinear Dynamics of Networks, University of Maryland
 Workshop on Group Behavior, University of Arizona
 Disease in Motion, Princeton University
 Swarm Workshop, Max Planck Institute for the Physics of Living Systems, Dresden
- 2009 Applied Mathematics Colloquium, Cornell University
 Robotics Institute, Carnegie Mellon University
 DARPA Microsystems Technology Office Seminar, San Jose
 Sloan-Schwartz Annual Meeting on Computational Neuroscience, Harvard University
 Invitational speech, Board of National Institute of General Medical Sciences, Bethesda
 Ecology Seminar, University of Pennsylvania
 Workshop on Soft Active Materials, Syracuse University
 Collective Decision Making Workshop, Santa Fe Institute, Santa Fe
 Department of Neurobiology, Weizmann Institute, Israel
- 2008 Session Leader, Collective Animal Motion, Gordon Research Conference on Theoretical
 Biology and Biomathematics, Italy
 NSF Workshop on Complex Systems, Washington DC
 Renaissance Technologies Colloquium, Long Island, NY
 NIH Modeling Social Behavior, Bethesda, MD
 Princeton Plasma Physics Laboratory, Princeton, NJ
- 2007 Divisional seminar, Division of Biology, Caltech
 Department of Ecology and Evolutionary Biology and Institute for Genomics and
 Systems Biology, University of Chicago
 Centre for Integrative Multiscale Modeling & Control and Dynamical Systems, Caltech
 Department of Biosciences, Birmingham University, UK
 AAAS Meeting, San Francisco
 Speaker, BIOCAMP, Italy
 Departmental Seminar, Mechanical Engineering, MIT

Scientific Service

- Honorary member of the Italian Society for Chaos and Complexity (2020 -)
 Scientific Board of Trustees, BIOTOPIA, Natural History Museum of Bavaria (2020 -)
 McDonnell Foundation Complex Systems Advisory Panel (2016 -)
 Princeton University Press European Advisory Board (2016 -)
 Committee Member for the Reorientation of the Max Planck Institute for Cybernetics, Tübingen
 Editor, *eLife* (2014 - 2020)
 Scientific Advisory Board, Institute for Pure and Applied Mathematics, UCLA (Oct 2014 -)
 Editor, *Movement Ecology* (2012 -)
 Editor, *Behavioral Ecology* (until mid-2011)
 Editorial Board, *Journal of Nonlinear Science*
 Associate Editor, *Advances in Complex Systems*
 Editorial Board, *Swarm Intelligence*
 Guest Editor, *PLoS Computational Biology*
 Guest Editor, *PNAS USA (PNAS)*
 Founding Advisory Board Member, National Institute for Mathematical and Biological Synthesis
 (NIMBioS). University of Tennessee, Knoxville.
 Scientific Management Board / International Advisory Board, “Complex agent-based dynamic net-
 works” research group at the University of Oxford (until 2012)
 Advisory Board. Terreform ONE, Ecological Design Group for Urban Infrastructure, Planning and Art.
 Scientific Advisory Board, Lifeboat Foundation

Advisor, Harvard Business Review and the World Economic Forum, Manhattan, 2008
Advisor, Seed Business Group and the World Economic Forum, Cambridge, MA, 2008
Advisor to the NSF bio-directorate on systems biology, 2007
Adviser to the Department of Trade and Industry on 'intelligent infrastructure' (invited by Sir David King, Chief Scientific Advisor to H.M. Government), 2004

Scientific Service (Princeton University) Graduate Student Admissions Committee & Faculty Search Committee, Department of Ecology and Evolutionary Biology, 2010; Research Computing Advisory Group, 2010-2014; Institutional Animal Care and Use Committee, 2007-2010

Scientific Service (Outreach Activities)

National Geographic Learning, Learning Statistics Book, "How statistics fit into the big picture": employs my data to show real-world examples of using statistics to enable scientific discovery, 2012-present

Science magazine Live Chat, The Science of Decision-Making, 2012

The Secret Science Club, The Bell House, Brooklyn, 2011

PopTech, 2011 http://poptech.org/popcasts/ian_couzin_collective_behavior

The OpenSwarm Initiative: to introduce collective behavior and pattern formation in nature to the public, and students across disciplines, through art, robotics and biology, from 2010

Metro High School, Columbus OH, Introducing the OpenSwarm Initiative

RadioLab's AWE-MAGEDDON Curiosity Cabaret, Manhattan, NYC, 2010

<http://www.wnyc.org/thegreenespace/events/2010/apr/14/radiolabs-awe-mageddon/>

The Secret Science Club, Brooklyn, NYC, 2010

BigThink Interview, 2010

World Science Festival, Manhattan, NYC: "Traffic, from insects to interstates" panelist with Mitchell Joachim and Anna Nagurny, moderated by Robert Krulwich, 2009

Edge.org "Interview with Iain Couzin" selected for Harper Collins Book "Best of Edge", 2009

Science on Saturday, for middle- and high-school students, 2008

Plenary speaker at the International IdeaFestival, Kentucky

Featured in, "Cool Careers in Science", Sally Ride Science (for upper elementary and middle school) and one of 5 scientists featured in "Social Lives of Animals" by Scholastic (for ages 7-9)

AimHigher Masterclasses at Newcastle United's "St. James Park" and Sunderland F.C.'s "The Stadium of Light": to raise aspirations, awareness and attainment of young people from disadvantaged backgrounds, under-represented groups and people with disabilities, 2005

Selected media attention (needs to be updated...)

(2015) Baboon-Trackers herald New Age in Animal Behaviour Research, by Ed Yong, National Geographic

(2015) Planning a Holiday? Take Some Advice from Baboons, New Statesman

(2014) Feature article by Michael Brooks, "Mind Meld: The Genius of Swarm Thinking", New Scientist magazine

(2013) Feature article by Ed Yong: "As one: the science of swarms" WIRED magazine

(2013) Front cover article by Christina Luiggi "Crowd Control" in The Scientist magazine

(2013) National Geographic, "The real wisdom of crowds"

(2013) New Scientist, "Swarm-mongering: Brainless blobs flock together"

(2012) New York Times, SundayReview, "Walk like a fish"

(2012) National Geographic, "Can we control other peoples minds? Should we?"

(2012) Discover, "To work out why fish swim together, tempt a predator with virtual prey"

(2012) NPR, "Swarming up a storm: why animals school and flock"

(2012) The Economist, "The benefits of schooling"

(2012) The Telegraph India, 'Fish spill group secret on video game'

(2012) BBC News, 'Fish play video game in new behaviour study'

(2012) Wired, 'Predatory fish play video game to answer evolutionary quandry'

(2012) Wall Street Journal, 'Chips not just for gamers anymore'

(2012) National Geographic Magazine, Emerging Explorers Award

(2012) CNN, 'In Mauritania: sunny with a chance of locusts'

(2011) BBC, Interviewed in 'The Code' BBC2, predicting human crowds

(2011) TIME, 'America votes with the fishes'

(2011) Wall Street Journal, 'A fishy study of uninformed voters?'

(2011) Brunei Times, 'Minnows reveal true power of the 'uninformed''

(2011) Wired, 'How ignorance could improve group decisions'

(2011) BBC News, 'Disinterested 'key in democracy''

(2011) Miller-McCune, 'Why a democracy needs uninformed people'

(2011) ScienceNews, 'Uncommitted newbies can foil forceful few'

(2011) Chronicle of Higher Education, 'Study of fish suggests the value of uninformed voters'

(2011) Australian Broadcasting Corporation, 'Minnows reveal power of the uninformed'

(2011) MSNBC.com, 'Can ignorance make a better democracy? In fish it can...'

(2011) The Daily Mail, 'Vote for apathy?'

(2011) The Economist, 'Collective behavior: Follow my leader'

(2011) ScienceNews, 'School rules'

(2010) New York Times, Environment, 'On the migratory trail, leaders and followers'

(2010) Popular Science Magazine, Featured as one of the 'Brilliant 10'

(2010) Wired Science, 'How mass migration might have evolved'

(2010) Wired News, 'Math is no match for locust swarms'

(2010) ScienceDaily, 'Introducing robofish: leading the crowd in studying group dynamics'

(2010) Welt, 'Roboterfisch führt schwärme'

(2010) Slashdot, 'Robotfish' schools the rest'

(2010) SETI Radio, 'Swarm in here ... or is it just me?'

(2010) Big Think, Interview with Iain Couzin: <http://bigthink.com/IainCouzin>

(2010) ScienceNews, 'Swarming locusts impossible to predict'

(2009) Science Illustrated (front cover article 'Swarm!')

(2009) ABC News, Interviewed on 'Good Morning America'

(2009) "On My Mind" by Iain Couzin, SEED Magazine.

(2009) "Traffic: From insects to interstates", World Science Festival, New York City

(2008) BBC News, 'Cannibal theory for locust swarms'

(2008) Channel 4 (UK) News, 'Locusts driven by cannibalism'

(2008) Nature News, 'Cannibalism drives locust swarms'

(2008) New Scientist, 'The hunger the horror'.

(2008) The Economic Times, 'Cannibalism drives vast locust swarms'

(2008) Der Spiegel feature article 'Schlauer im swarm'

(2008) Science Daily 'What's bugging locusts?'

(2008) "Traffic" by Tom Vanderbildt, Random House Press (Chapter 4: Meet the World's Best Com-
muter: What We Can Learn From Ants, Locust and Crickets).

(2008) "Nature's Patterns: Flow" by Philip Ball, Oxford University Press (Chapter 5: Follow Your
Neighbor: Flocks, Swarms and Crowds).

(2008) National Public Radio, 'The physics of fish'

(2008) WNYC, The Brian Lehrer Show

(2007) New York Times, feature on my research by Carl Zimmer “From ants to people, an instinct to swarm”, Science Times front cover

Television credits (IMDB)

(2018) Wie Wissen, himself

(2017) Planet Wissen, himself

(2014) PBS, Nature: The Gathering Swarms, scientific consultant

(2013) BBC, Dara O’Brien’s Science Club, himself

(2012) Nova, Science Now: ‘What are animals thinking?’, himself

(2011) BBC, The Code, ‘Prediction’, himself

(2010) National Geographic, *Great Migrations*:

- Feast or Famine, scientific consultant

- Race to Survive, scientific consultant

- Need to Breed, scientific consultant

(2009) BBC, *Swarm: Nature’s Incredible Invasions*:

- One Million Heads one Beautiful Mind, scientific consultant

- When Worlds Collide, scientific consultant

(2004) BBC, *Massive Nature*:

- The Trap, scientific consultant.

(2000) BBC, *Predators: Mass Attack*, scientific consultant and simulation developer