

## STEPHEN C. PRATT

Curriculum vitae

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School of Life Sciences  
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### EDUCATION:

- 1997            Ph.D., Cornell University, Neurobiology and Behavior.  
1988            B.A., Harvard University, Biology.

### APPOINTMENTS

- 2012–present    Associate Professor, School of Life Sciences, Arizona State University.  
2006–2012      Assistant Professor, School of Life Sciences, Arizona State University.  
2001–2006      Lecturer and Postdoctoral Scientist, Department of Ecology and  
Evolutionary Biology, Princeton University.  
1998–2000      Postdoctoral Fellow, Department of Biology, University of Bath.  
1997–1998      Postdoctoral Scientist, Whitehead Institute for Biomedical  
Research/MIT Center for Genome Research.

### RESEARCH FUNDING

#### Current research support

- 2016–2019      Source: National Science Foundation, Division of Physics.  
Title: Emergent computation in collective decision making by the  
crevice-dwelling rock ant *Temnothorax rugatulus*.  
Role: Co-Principal Investigator.  
2017–2018      Source: Defense Advanced Research Projects Agency.  
Title: Bio-inspired swarming (BioSwarm).  
Role: Principal Investigator (of subcontract from prime grant recipient,  
Georgia Tech).  
2017-2020      Source: Defense Advanced Research Projects Agency.  
Title: Biologically-Inspired Swarm perception and Control Technology  
(BISECT).  
Role: Principal Investigator (of subcontract from prime grant recipient,  
Scientific Systems Company, Inc.).

**Completed research support**

- 2010–2016 Source: National Science Foundation, Computing and Communication Foundations.  
Title: Distributed processing over cognitive networks.  
Role: Principal Investigator.
- 2010–2014 Source: National Science Foundation, Advances in Biological Informatics.  
Title: Automating the large-scale measurement of insect behavior.  
Role: Principal Investigator.
- 2008–2014 Source: Office of Naval Research, Multidisciplinary University Research Initiative.  
Title: HUNT: Heterogeneous Unmanned Networked Teams.  
Role: Co-Investigator.

**PUBLICATIONS****Peer-reviewed articles**

(53 articles total; WoS: 2645 citations, h=26; Google: 4069 citations, h=31)

- 2018 Tollis, M., Hutchins, E.D., Stapley, J., Rupp, S.M., Eckalbar, W.L., Maayan, I., Lasku, E., Infante, C.R., Dennis, S.R., Robertson, J.A., May, C.M., Crusoe, M.R., Bermingham, E., DeNardo, D.F., Hsieh, S.T., Kulathinal, R.J., McMillan, W.O., Menke, D.B., **Pratt, S.C.**, Rawls, J.A., Sanjur, O., Wilson-Rawls, J., Wilson Sayres, M.A., Fisher, R.E., Kusumi, K. Comparative genomics reveals accelerated evolution in conserved pathways during the diversification of anole lizards. *Genome Biology and Evolution*, in press.
- 2018 Sasaki, T. and **Pratt, S.C.** The psychology of superorganisms: Collective decision-making by insect societies. *Annual Review of Entomology* 63: 259-275.
- 2018 Marting, P.R., Wcislo, W.T., and **Pratt, S.C.** Colony personality and plant health in the *Azteca-Cecropia* mutualism. *Behavioral Ecology* 29: 264-271.
- 2016 Doering, G.N. and **Pratt, S.C.** Queen location and nest site preference influence colony reunification by the ant *Temnothorax rugatulus*. *Insectes Sociaux* 63: 585-591.
- 2016 Shaffer, Z., Sasaki, T., Haney, B., Janssen, M., **Pratt, S.C.**, and Fewell, J.H. The foundress's dilemma: Group selection for cooperation among queens of the harvester ant, *Pogonomyrmex californicus*. *Scientific Reports* 6: 29828.
- 2016 Buffin, A. and **Pratt, S.C.** Cooperative transport by the ant *Novomessor cockerelli*. *Insectes Sociaux* 63: 429-438.
- 2016 Sasaki, T., Penick, C.A., Shaffer, Z., Haight, K.L., **Pratt, S.C.**, and Liebig, J. A simple behavioral model predicts the emergence of complex animal hierarchies. *The American Naturalist* 187: 765-775.
- 2016 Sasaki, T., Janssen, M.A., Shaffer, Z., and **Pratt, S.C.** Exploration of unpredictable environments by networked groups. *Current Zoology* 62: 207-214.

- 2015 Oldroyd, B.P. and **Pratt, S.C.** Comb architecture of the eusocial bees arises from simple rules used during cell building. *Advances in Insect Physiology* 49: 101-121.
- 2015 Sasaki, T., Colling, B., Sonnenschein, A., Boggess, M.M., and **Pratt, S.C.** Flexibility of collective decision making during house hunting in *Temnothorax* ants. *Behavioral Ecology and Sociobiology* 69: 707-714.
- 2014 Wilson, S., Pavlic, T.P., Kumar, G.P., Buffin, A., **Pratt, S.C.**, and Berman, S. Design of ant-inspired stochastic control policies for collective transport by robotic swarms. *Swarm Intelligence* 8(4): 303-327.
- 2014 Sasaki, T., Hölldobler, B., Millar, J.G., and **Pratt, S.C.** A context-dependent alarm signal in the ant *Temnothorax rugatulus*. *Journal of Experimental Biology* 217: 3229-3236.
- 2014 Overson, R., Gadau, J., Clark, R.M., **Pratt, S.C.** and Fewell, J.H. Behavioral transitions with the evolution of cooperative nest founding by harvester ant queens. *Behavioral Ecology and Sociobiology* 68: 21-30.
- 2013 Sasaki, T. and **Pratt, S.C.** Ants learn to rely on more informative attributes during decision making. *Biology Letters* 9: 20130667.
- 2013 Shaffer, Z., Sasaki, T. and **Pratt, S.C.** Linear recruitment leads to allocation and flexibility in collective foraging by ants. *Animal Behaviour* 86: 967-975.
- 2013 Sasaki, T., Granovskiy, B., Mann, R.P., Sumpter, D.J.T. and **Pratt, S.C.** Ant colonies outperform individuals when a sensory discrimination task is difficult but not when it is easy. *Proceedings of the National Academy of Sciences* 110: 13769-13773.
- 2013 Bowens, S., Glatt, D. and **Pratt, S.C.** Visual navigation during colony emigration by the ant *Temnothorax rugatulus*. *PLoS ONE* 8: e64367.
- 2012 Sasaki, T. and **Pratt, S.C.** Groups have a larger cognitive capacity than individuals. *Current Biology* 22: R827-R829.
- 2011 Berman, S., Lindsey, Q., Sakar, M.S., Kumar, V. and **Pratt, S.C.** Experimental study and modeling of group retrieval in ants as an approach to collective transport in swarm robotic systems. *Proceedings of the IEEE* 99: 1470-1481.
- 2011 Sasaki, T. and **Pratt, S.C.** Emergence of group rationality from irrational individuals. *Behavioral Ecology* 22:276-281.
- 2010 *Nasonia* Genome Working Group Functional and evolutionary insights from the genomes of three parasitoid *Nasonia* species. *Science* 327: 343-348.
- 2009 Edwards, S.C. and **Pratt, S.C.** Rationality in collective decision-making by ants. *Proceedings of the Royal Society of London B* 276: 3655-3661.
- 2009 Sumpter, D.J.T. and **Pratt, S.C.** Quorum responses and consensus decision-making. *Philosophical Transactions of the Royal Society B* 364: 743-753.
- 2008 Healey, C.I.M. and **Pratt, S.C.** The effect of prior experience on nest site evaluation by the ant *Temnothorax curvispinosus*. *Animal Behaviour* 76: 893-899.

- 2008 **Pratt, S.C.** Efficiency and regulation of recruitment during colony emigration by the ant *Temnothorax curvispinosus*. *Behavioral Ecology and Sociobiology* 62: 1369-1376.
- 2007 Loomes, K.M., Stevens, S.A., O'Brien, M.L., Gonzalez, D.M., Ryan, M.J., Segalov, M., Dormans, N.J., Mimoto, M.S., Gibson, J.D., Sewell, W., Schaffer, A.A., Nah, H.D., Rappaport, E.F., **Pratt, S.C.**, Dunwoodie, S.L. and Kusumi, K. *Dll3* and *Notch1* genetic interactions model axial segmental and craniofacial malformations of human birth defects. *Developmental Dynamics* 236: 2943-2951.
- 2007 William, D.A., Saitta, B., Gibson, J.D., Traas, J., Markov, V., Gonzalez, D.M., Sewell, W., Anderson, D.M., **Pratt, S.C.**, Rappaport, E.F. and Kusumi, K. Identification of oscillatory genes in somitogenesis from functional genomic analysis of a human mesenchymal stem cell model. *Developmental Biology* 305: 172-186.
- 2006 **Pratt, S.C.** and Sumpter, D.J.T. A tunable algorithm for collective decision-making. *Proceedings of the National Academy of Sciences* 103: 15906-15910.
- 2006 Balch, T., Dellaert, F., Feldman, A., Guillory, A., Isbell, C., Khan, Z., **Pratt, S.C.**, Stein, A. and Wilde, H. How multi-robot systems research will accelerate our understanding of social animal behavior. *Proceedings of the IEEE* 94: 1445-1463.
- 2006 Gabriel, A., Dapprich, J., Kunkel, M., Gresham, D., **Pratt, S.C.** and Dunham, M. Global mapping of transposon location, *PLoS Genetics* 2: 2026-2038.
- 2006 Ruderfer, D., **Pratt, S.C.**, Seidel, H. and Kruglyak, L. Population genomic analysis of outcrossing and recombination in yeast. *Nature Genetics* 38: 1077-1081.
- 2006 Gresham, D., Ruderfer, D. M., **Pratt, S.C.**, Schacherer, J., Dunham, M., Botstein, D. and Kruglyak, L. Genome-wide mapping of polymorphisms at nucleotide resolution with a single DNA microarray. *Science* 311: 1932-1936.
- 2005 **Pratt, S.C.** Behavioral mechanisms of collective nest-site choice by the ant *Temnothorax curvispinosus*. *Insectes Sociaux* 52: 383-392.
- 2005 **Pratt, S.C.**, Sumpter, D.J.T., Mallon, E.B. and Franks, N.R. An agent-based model of collective nest choice by the ant *Temnothorax albipennis*. *Animal Behaviour* 70: 1023-1036.
- 2005 **Pratt, S.C.** Quorum sensing by encounter rates in the ant *Temnothorax albipennis*. *Behavioral Ecology* 16: 488-496.
- 2004 **Pratt, S.C.** Collective control of the timing and type of comb construction by honey bees (*Apis mellifera*). *Apidologie* 35: 193-205.
- 2003 Sumpter, D.J.T. and **Pratt, S.C.** A modeling framework for understanding social insect foraging. *Behavioral Ecology and Sociobiology* 53: 131-144.
- 2002 McLeman, M.A., **Pratt, S.C.**, and Franks, N.R. Navigation using visual landmarks by the ant *Leptothorax albipennis*. *Insectes Sociaux* 49: 203-208.

- 2002 Franks, N.R., **Pratt, S.C.**, Britton, N.F., Mallon, E.B., and Sumpter, D.J.T. Information flow, opinion-polling and collective intelligence in house-hunting social insects. *Philosophical Transactions: Biological Sciences* 357: 1567-1584.
- 2002 Britton, N.F., Franks, N.R., **Pratt, S.C.**, and Seeley, T.D. Deciding on a new home: how do honey bees agree? *Proceedings of the Royal Society of London B* 269: 1383-1388.
- 2002 **Pratt, S.C.**, Mallon, E.B., Sumpter, D.J.T., and Franks, N.R. Quorum sensing, recruitment, and collective decision-making during colony emigration by the ant *Leptothorax albipennis*. *Behavioral Ecology and Sociobiology* 52: 117-127.
- 2001 **Pratt, S.C.**, Brooks, S.E. and Franks, N.R. The use of edges in visual navigation by the ant *Leptothorax albipennis*. *Ethology* 107: 1125-1136.
- 2001 Mallon, E.B., **Pratt, S.C.**, and Franks, N.R. Individual and collective decision-making during nest site selection by the ant *Leptothorax albipennis*. *Behavioral Ecology and Sociobiology* 50: 352-359.
- 2001 **Pratt, S.C.** and Pierce, N.E. The cavity-dwelling ant *Leptothorax curvispinosus* uses nest geometry to discriminate among potential homes. *Animal Behaviour* 62: 281-287.
- 2000 **Pratt, S.C.**, Daly, M.J. and Kruglyak, L. Exact multipoint quantitative-trait linkage analysis in pedigrees by variance components. *American Journal of Human Genetics* 66: 1153-1157.
- 2000 **Pratt, S.C.** Gravity-independent orientation of honeycomb cells. *Naturwissenschaften* 87: 33-35.
- 1999 **Pratt, S.C.** Optimal timing of comb construction by honey bee colonies: a dynamic programming model and experimental tests. *Behavioral Ecology and Sociobiology* 46: 30-42.
- 1998 **Pratt, S.C.** Condition-dependent timing of comb construction by honey bee colonies: How do workers know when to start building? *Animal Behaviour* 56: 603-610.
- 1998 **Pratt, S.C.** Decentralized control of drone comb construction in honey bee colonies. *Behavioral Ecology and Sociobiology* 42: 193-205.
- 1996 **Pratt, S.C.**, Kühnholz, S., Seeley, T.D. and Weidenmüller, A. Worker piping associated with foraging in undisturbed queenright colonies of honey bees. *Apidologie* 27: 13-20.
- 1994 **Pratt, S.C.** Ecology and behavior of *Gnamptogenys horni* (Formicidae: Ponerinae). *Insectes Sociaux* 41: 255-262.
- 1994 **Pratt, S.C.**, Calabi, P. and Carlin, N.F. Division of labor in *Ponera pennsylvannica* (Formicidae: Ponerinae). *Insectes Sociaux* 41: 43-61.
- 1989 **Pratt, S.C.** Recruitment and other communication behavior in the ponerine ant *Ectatomma ruidum*. *Ethology* 81: 313-331.

**Book chapters and other publications**

- 2013 Pavlic, T.P. and **Pratt, S.C.** Superorganismic behavior via human computation. In: Michelucci, P. (Ed.), *Handbook of human computation*, pp. 911-960. Berlin: Springer.
- 2013 Kumar, G.P., Buffin, A., Pavlic, T.P., **Pratt, S.C.** and Berman, S.M. A stochastic hybrid system model of collective transport in the desert ant *Aphaenogaster cockerelli*. *Hybrid Systems: Computation and Control, HSCC'13*, pp. 119-124.
- 2010 **Pratt, S.C.** Nest site choice in social insects. In: M. D. Breed and J. Moore (Eds.), *Encyclopedia of animal behavior*, Vol. 2, pp. 534-540. Amsterdam: Elsevier.
- 2010 **Pratt, S.C.** Collective intelligence. In: M. D. Breed and J. Moore (Eds.), *Encyclopedia of animal behavior*, Vol. 1, pp. 303-309. Amsterdam: Elsevier.
- 2008 **Pratt, S.C.** Insect societies as models for collective decision-making. In: J. Gadau & J. N. Fewell (Eds.), *Organization of insect societies: From genomes to sociocomplexity*, pp. 503-524. Cambridge: Harvard University Press.
- 2007 Berman, S., Halász, A., Kumar, V. and **Pratt, S.C.** Bio-inspired group behaviors for the deployment of a swarm of robots to multiple destinations. *Proceedings of the IEEE International Conference on Robotics and Automation, ICRA'07*, pp. 2318-2323.
- 2007 Berman, S., Halász, A., Kumar, V. and **Pratt, S.C.** Algorithms for the analysis and synthesis of a bio-inspired swarm robotic system. In: E. Sahin, W. M. Spears and A. F. T. Winfield (Eds.), *Swarm robotics*, pp. 56-70. Berlin: Springer.
- 1997 **Pratt, S.C.** Managing for comb construction. *Bee Culture* 125(4): 24-26.

**INVITED TALKS**

- 2016 Decentralized mechanisms of collective behavior in social insects. Department of Biology Seminar, Colorado State University, Fort Collins, December 7.
- 2016 Collective cognition by insect societies. Department of Ecology and Evolutionary Biology Seminar, University of Colorado, Boulder, November 4.
- 2016 Collective cognition by insect societies. Department of Entomology Colloquium, University of Illinois, Champaign-Urbana, October 24.
- 2015 Collective cognition by insect societies. USDA Arid –Land Agricultural Research Center, Maricopa, Arizona, October 5.
- 2015 Mechanisms of collective behavior by insect societies. Ant Course, Southwestern Research Station, Portal, Arizona, August 14.
- 2015 Collective cognition by insect societies. Mathematical Institute, University of Uppsala, Sweden, May 6.
- 2015 Collective cognition by insect societies. School of Biological Sciences, University of Sydney, Australia, March 20.

- 2012 Psychology of a superorganism: Collective decision-making by ant colonies. Department of Biology, Northern Arizona University, April 12.
- 2011 Psychology of a superorganism: Collective decision-making by ant colonies. Strategic Studies Group, Naval War College, Newport, Rhode Island, November 14.
- 2011 Psychology of a superorganism: Collective decision-making by ant colonies. Department of Economics, Boston University, March 31.
- 2010 Collective decision-making in ants: The interplay of group and individual cognition. Groningen Lectures in Theoretical Biology, University of Groningen, Netherlands, January 13.
- 2007 The role of quorum sensing in the collective decisions of insect societies. Center for Insect Science Fall Hexapodium, University of Arizona, Tucson, Arizona, December 7.
- 2007 Collective decision-making by ant colonies: Linking group and individual behavior. University of Pennsylvania, Philadelphia, Pennsylvania, March 16.
- 2006 From individual behavior to collective cognition in decision-making by ants. University of Missouri, Columbia, Missouri, October 18.
- 2005 A tunable algorithm for collective decision-making by ant colonies. Arizona State University, Tempe, Arizona, August 22.
- 2005 How ants choose a new nest: an algorithm for collective decision-making. University of Umeå, Sweden, April 13.
- 2005 From individual behavior to collective cognition in decision-making by ants. University of Minnesota, St. Paul, Minnesota, February 21.
- 2004 From individual to collective behavior in nest site selection by ants. University of Oxford, United Kingdom, May 13.
- 2002 Individual recruitment rules underlying collective choice of nest sites by ants. Harvard University, Cambridge, Massachusetts, September 3.
- 2002 Quorum sensing, recruitment, and collective decision-making during colony emigration by the ant *Leptothorax albipennis*. Cornell University, Ithaca, New York, February 21.
- 2000 From individual behavior to collective decisions: how emigrating ant colonies choose a new nest site. University of Bristol, Bristol, United Kingdom, May 16.
- 2000 Functional design of an insect society: how honey bee colonies control the timing and type of comb construction. Yale University, New Haven, Connecticut, February 9.
- 1999 Optimal timing of comb construction by honey bee colonies: a dynamic programming model and experimental tests. University of Würzburg, Würzburg, Germany, February 24.

## CONFERENCE PRESENTATIONS

- 2015 **Pratt, S.C.** Mechanisms of collective behavior by insect societies. 1<sup>st</sup> International Symposium on Swarm Behavior and Bio-inspired Robotics, Kyoto, Japan, October 30.
- 2014 **Pratt, S.C.** Distributed information processing by insect societies. 2<sup>nd</sup> Workshop on Biological Distributed Algorithms, Austin, Texas, October 11.
- 2014 **Pratt, S.C.** and Pavlic, T.P. Sequential-sampling models of quorum detection in house-hunting ants. 17<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Cairns, Australia, July 13-18.
- 2014 **Pratt, S.C.** Collective cognition by insect societies. Collective Intelligence Conference, Cambridge, Massachusetts, June 11.
- 2013 **Pratt, S.C.** Distributed information processing by insect societies. 1<sup>st</sup> IEEE Global Conference on Signal and Information Processing, Austin, Texas, December 3.
- 2012 **Pratt, S.C.** Collective decision-making in ants. 60<sup>th</sup> Annual Meeting of the Entomological Society of America, Knoxville, Tennessee, November 11.
- 2012 **Pratt, S.C.** Collective intelligence of insect societies: Understanding the algorithmic basis of behavior. 2012 meeting of the Computational Social Science Society of the Americas, Santa Fe, New Mexico, September 20.
- 2012 **Pratt, S.C.** Psychology of a superorganism: Collective decision-making by ant colonies. Interdisciplinary Workshop on Collective Decisions, Paris School of Economics, Paris, France, July 1.
- 2011 **Pratt, S.C.**, Berman, S., Kumar, V., Lindsey, Q., and Sakar M.S. Collective transport by ants as a model for robot teams (*Poster*). Annual Meeting of the Society for Integrative and Comparative Biology, Salt Lake City, Utah.
- 2010 **Pratt, S.C.** Collective decision-making in ants: The interplay of group and individual cognition. 16<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Copenhagen, Denmark.
- 2010 **Pratt, S.C.** Collective decision-making in ants: The interplay of group and individual cognition. 47<sup>th</sup> annual meeting of the Animal Behavior Society, Williamsburg, Virginia.
- 2009 **Pratt, S.C.** Ant colonies as distributed information processors. National Science Foundation Workshop on Distributed Processing over Cognitive Networks, Los Angeles, California, November 20.
- 2009 **Pratt, S.C.** Decision-making by ants: Rational groups of irrational individuals? Third Workshop on Swarming in Natural and Engineering Systems, Block Island, Rhode Island, June 4.
- 2008 **Pratt, S.C.** Discovering the algorithms that coordinate animal behavior. Kickoff meeting for the Office of Naval Research HUNT project, University of Pennsylvania, Philadelphia, Pennsylvania, September 18.
- 2008 **Pratt, S.C.** The interaction of group and individual decision-making during nest-site selection by ants. Workshop on Systems Biology of Decision Making, Mathematical Biosciences Institute at The Ohio State University, Columbus, Ohio, June 20.



- 2008 **Pratt, S.C.** Collective decision-making by ant colonies: Linking group and individual behavior. Workshop on Modeling Complex Biological Systems, Center for Interdisciplinary Mathematics, University of Uppsala, Sweden, April 17.
- 2008 **Pratt, S.C.** Quorum responses and consensus decision-making. Group as Individual in Social Dynamics, 1<sup>st</sup> International Conference of the ASU Center for Social Dynamics and Complexity, Tempe, Arizona.
- 2007 **Pratt, S.C.** The role of quorum sensing in the collective decisions of insect societies. 55<sup>th</sup> Annual Meeting of the Entomological Society of America, San Diego, California.
- 2007 **Pratt, S.C.** Collective decision-making by ant colonies: Linking group and individual behavior. Robotics Science and Systems Conference: Workshop on Algorithmic Equivalences Between Biological and Robotic Swarms, Atlanta, Georgia, June 30.
- 2007 **Pratt, S.C.** Rationality in collective and individual decision-making by ants. Second Workshop on Swarming in Natural and Engineered Systems, Philadelphia, Pennsylvania, May 16.
- 2006 **Pratt, S.C.** Irrationality in collective decision-making by ants. 15<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Washington, D.C.
- 2005 **Pratt, S.C.** A tunable algorithm for collective decision-making by ant colonies. Workshop on Swarming in Natural and Engineered Systems, Napa, California, August 3.
- 2004 **Pratt, S.C.** A tradeoff between speed and accuracy of collective nest site choice by ants. Annual Meeting of the North American Section of the International Union for the Study of Social Insects, Camp Tontozona, Arizona.
- 2003 **Pratt, S.C.** Detection of a nestmate quorum via encounter rates in the ant *Leptothorax albipennis*. 2<sup>nd</sup> International Workshop on the Mathematics and Algorithms of Social Insects, Atlanta, Georgia.
- 2003 **Pratt, S.C.** Detection of a nestmate quorum via encounter rates in the ant *Leptothorax albipennis*. 51<sup>st</sup> Annual Meeting of the Entomological Society of America, Cincinnati, Ohio.
- 2002 **Pratt, S.C.** Individual recruitment rules underlying collective choice of nest sites by ants. Fondation des Treilles Workshop on Self-organization and Collective Decision-Making by Animal Societies, Tourtour, France, August 30.
- 2002 **Pratt, S.C.** Collective decision-making in ants. Symposium on Multilevel Selection at the 39<sup>th</sup> annual meeting of the Animal Behavior Society, Bloomington, Indiana, July 16.
- 2002 **Pratt, S.C., Mallon, E.B., Sumpter, D.J.T., and Franks, N.R.** Quorum-sensing and collective decision-making during colony emigration by the ant *Leptothorax albipennis*. 14<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Sapporo, Japan.

- 2002 **Pratt, S.C.** Quorum-sensing and collective decision-making during colony emigration by the ant *Leptothorax albipennis*. 9<sup>th</sup> Biennial Congress of the International Society for Behavioral Ecology, Montreal, Canada.
- 2001 **Pratt, S.C.**, Mallon, E.B., Sumpter, D.J.T., and Franks, N.R. From individual to collective behavior in nest site selection by the ant *Leptothorax albipennis*. Workshop on the Mathematics of Social Insects, Isaac Newton Institute for Mathematical Sciences, University of Cambridge.
- 2001 **Pratt, S.C.**, Mallon, E.B., Sumpter, D.J.T., and Franks, N.R. From individual to collective behavior in nest site selection by the ant *Leptothorax albipennis*. 38<sup>th</sup> annual meeting of the Animal Behavior Society, Corvallis, Washington.
- 2001 **Pratt, S.C.**, Mallon, E.B., Sumpter, D.J.T., and Franks, N.R. Information flow and collective decision-making during nest site selection by the ant *Leptothorax albipennis*. 2001 conference of the Society for the Study of Evolution, Knoxville, Tennessee.
- 2000 **Pratt, S.C.** Collective decision-making in a small society: how the ant *Leptothorax albipennis* chooses a nest site. Ants'2000: 2<sup>nd</sup> International Workshop on Ant Algorithms, Brussels, Belgium.
- 1998 **Pratt, S.C.** Decentralized control of drone comb construction in honey bee colonies. 13<sup>th</sup> Congress of the International Union for the Study of Social Insects, Adelaide, Australia.
- 1998 **Pratt, S.C.** Optimal timing of comb construction by honey bee colonies. Winter meeting of the International Union for the Study of Social Insects–British Section, London, United Kingdom.
- 1998 **Pratt, S.C.** Decentralized control of drone comb construction in honey bee colonies. International meeting on the mathematical biology of pattern and process, University of Bath, Bath, United Kingdom.
- 1997 **Pratt, S.C.** Control of the timing of comb construction by honey bee colonies. 1997 meeting of the International Union for the Study of Social Insects–North American Section, Nederland, Colorado.
- 1994 **Pratt, S.C.** Regulation of the timing of comb construction by honey bee colonies. 12<sup>th</sup> Congress of the International Union for the Study of Social Insects, Paris, France.

#### CAMPUS AND DEPARTMENTAL TALKS

- 2016 Collective cognition by insect societies. Symposium in honor of Robert E. Page, December 13.
- 2016 Decentralized mechanisms of collective behavior in social insects. ASU Math Club, Tempe, Arizona, March 23.
- 2014 The psychology of ants and ant colonies. BEYOND Center Workshop on Information, Complexity and Life, Tempe, Arizona, February 25.
- 2010 Collective transport by ants as a model for robot teams. Conference on Social Biomimicry: Insect Societies and Human Design, Tempe Arizona, February 19.

- 2007 Collective decision-making by ant colonies: Linking group and individual behavior. Applied Psychology Seminar, Cognitive Engineering Research Institute, Mesa, Arizona September 18.
- 2005 Insect societies as collective decision-makers. Neuroscience of Social Decision Making Seminar, Princeton University, November 8.
- 2005 Collective decision-making by ant colonies. Neuroscience Retreat, Princeton University, June 2.
- 2005 Speed-accuracy tradeoffs in collective decision-making by ants. Maclean House postdoctoral seminar series, Princeton University, March 31.

#### CONFERENCE PRESENTATIONS BY STUDENTS AND POSTDOCS

- 2016 **Pratt, S.C.**, Jackson, J., Barnes M. Absence of robust regulation of drone comb construction by the honey bee, *Apis mellifera*. 25<sup>th</sup> International Congress of Entomology, Orlando, Florida.
- 2016 Cho, J.Y., **Pratt, S.C.** Do *Temnothorax rugatulus* (Hymenoptera: Formicidae) recruiters inform nestmates about the quality of the target? 25<sup>th</sup> International Congress of Entomology, Orlando, Florida.
- 2016 Burchill, A., Pavlic, T.P., **Pratt, S.C.** Consistent self-organized foraging allocations in the macronutrient-regulating carpenter ant *Camponotus fragilis* (*Poster*). 25<sup>th</sup> International Congress of Entomology, Orlando, Florida.
- 2016 Jackson, J., **Pratt, S.C.** Friend or foe: Testing the acceptance threshold model in honeybees (*Poster*). Meeting of the North American Section of the International Union for the Study of Social Insects, Orlando, Florida.
- 2016 Cho, J.Y., **Pratt, S.C.** Does hunger state increase recruitment effort in the ant *Temnothorax rugatulus*? (*Poster*). Meeting of the North American Section of the International Union for the Study of Social Insects, Orlando, Florida.
- 2016 Burchill, A., Pavlic, T.P., **Pratt, S.C.** Refusing to regulate: Starvation, sugar, and the ideal free distribution in carpenter ant colonies (*Poster*). Meeting of the North American Section of the International Union for the Study of Social Insects, Orlando, Florida.
- 2016 Doering, G.N., **Pratt, S.C.** Consensus decisions in *Temnothorax rugatulus* ants: The factors involved in reunifying divided colonies. 53<sup>rd</sup> annual meeting of the Animal Behavior Society, Columbia, Missouri.
- 2016 Cho, J.Y., **Pratt, S.C.** Do *Temnothorax rugatulus* recruiters inform nestmates about the quality of the target? 53<sup>rd</sup> annual meeting of the Animal Behavior Society, Columbia, Missouri.
- 2014 Buffin, A., Sasaki, T., **Pratt, S.C.** Is there a coordination cost to cooperative transport? 17<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Cairns, Australia.

- 2014 Sasaki, T., Hölldobler, B., Millar, J., **Pratt, S.C.** A context-dependent alarm signal in the ant *Temnothorax rugatulus*. 17<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Cairns, Australia.
- 2014 Pavlic, T.P., **Pratt, S.C.** Understanding foraging patterns that achieve colony-level macronutrient regulation. 17<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Cairns, Australia.
- 2013 Ebie, J., Shaffer, Z., **Pratt, S.C.** To recruit or not to recruit: When do *Temnothorax rugatulus* recruit to natural prey? 50<sup>th</sup> annual meeting of the Animal Behavior Society, Boulder, Colorado.
- 2013 Evans, J., Shaffer, Z., **Pratt, S.C.** Mechanisms of brood aggregation by colonies of the ant *Temnothorax rugatulus* after nest destruction. 50<sup>th</sup> annual meeting of the Animal Behavior Society, Boulder, Colorado.
- 2013 Briner, J., Sasaki, T., **Pratt, S.C.** Some is good, more is better: brood presence affects collective choice in *Temnothorax* colonies. 50<sup>th</sup> annual meeting of the Animal Behavior Society, Boulder, Colorado.
- 2013 Pavlic, T.P., **Pratt, S.C.** Sequential-sampling models of quorum sensing in house-hunting *Temnothorax* ants. 50<sup>th</sup> annual meeting of the Animal Behavior Society, Boulder, Colorado.
- 2013 Shaffer, Z., **Pratt, S.C.**, Fewell, J.H. The foundress' dilemma: Group selection for cooperation among queens of *Pogonomyrmex californicus*. 50<sup>th</sup> annual meeting of the Animal Behavior Society, Boulder, Colorado.
- 2013 Cho, J.Y., Morshed, T., Lindsey, Q., Sakar, M.S., Steager, E., Kumar, V., **Pratt, S.C.** A robotic ant to probe route learning during tandem recruitment by ants. 50<sup>th</sup> annual meeting of the Animal Behavior Society, Boulder, Colorado.
- 2013 Sasaki, T. **Pratt, S.C.** Collective decision-making: Ants adjust attribute weights according to prior experience. 50<sup>th</sup> annual meeting of the Animal Behavior Society, Boulder, Colorado.
- 2013 Sasaki, T., **Pratt, S.C.** Ants adjust attribute weights according to prior experience. 61<sup>st</sup> Annual Meeting of the Entomological Society of America, Austin, Texas.
- 2013 Marting, P.R, **Pratt, S.C.** Collective individuality in defense behavior of *Azteca* ant colonies in *Cecropia* trees. 61<sup>st</sup> Annual Meeting of the Entomological Society of America, Austin, Texas.
- 2013 Shaffer, Z., **Pratt, S.C.** The wisdom of the acorn: Social foraging of the ant *Temnothorax rugatulus*. 61<sup>st</sup> Annual Meeting of the Entomological Society of America, Austin, Texas.
- 2013 Buffin, A., Sasaki, T., **Pratt, S.C.** Individual and group transport: What are the benefits of teamwork? 61<sup>st</sup> Annual Meeting of the Entomological Society of America, Austin, Texas.

- 2012 Marting, P.R., Wcislo, W.T., **Pratt, S.C.** Testing for collective personality in *Azteca* colonies (*Poster*). Meeting of the North American Section of the International Union for the Study of Social Insects, Greensboro, North Carolina.
- 2012 Ebie, J.D., Shaffer, Z., **Pratt, S.C.** When do *Temnothorax rugatulus* recruit to prey items? (*Poster*). Meeting of the North American Section of the International Union for the Study of Social Insects, Greensboro, North Carolina.
- 2012 Shaffer, Z., Drayer, S., **Pratt, S.C.**, Fewell, J.H. Optimum foundress number in *Pogonomyrmex californicus*: survival, division of labor, and productivity. (*Poster*). Meeting of the North American Section of the International Union for the Study of Social Insects, Greensboro, North Carolina.
- 2012 Sasaki, T., Granovskiy, B., Mann, R.P., Sumpter, D.J.T., **Pratt, S.C.** Colonies more precisely discriminate options than individual ants do. Meeting of the North American Section of the International Union for the Study of Social Insects, Greensboro, North Carolina.
- 2012 Buffin, A., **Pratt, S.C.** Emergence of coordination in collective food transport by the ant *Aphaenogaster cockerelli*. Meeting of the North American Section of the International Union for the Study of Social Insects, Greensboro, North Carolina.
- 2012 Pavlic, T., **Pratt, S.C.** Sequential-sampling models of quorum detection in house-hunting ants. Meeting of the North American Section of the International Union for the Study of Social Insects, Greensboro, North Carolina.
- 2012 Sasaki, T., Granovskiy, B., Sumpter, D.J.T., **Pratt, S.C.** Colonies more precisely discriminate options than individual ants do. 14<sup>th</sup> Congress of the International Society for Behavioral Ecology, Lund, Sweden.
- 2012 Shaffer, Z., **Pratt, S.C.** Social foraging in the ant *Temnothorax rugatulus*. 14<sup>th</sup> Congress of the International Society for Behavioral Ecology, Lund, Sweden.
- 2012 Sasaki, T. **Pratt, S.C.** Colonies more precisely discriminate options than individual ants do. 49<sup>th</sup> annual meeting of the Animal Behavior Society, Albuquerque, New Mexico.
- 2012 Shaffer, Z., **Pratt, S.C.** Individual behavior and social foraging in the ant, *Temnothorax rugatulus*. 49<sup>th</sup> annual meeting of the Animal Behavior Society, Albuquerque, New Mexico.
- 2012 Schaper, G.J., Shaffer, Z., **Pratt, S.C.** Elite ants and the regulation of house hunting and foraging in the rock cavity ant *Temnothorax rugatulus* (*Poster*). 49<sup>th</sup> annual meeting of the Animal Behavior Society, Albuquerque, New Mexico.

- 2011 Shaffer, Z., **Pratt, S.C.** Bees in a box: collective decision-making by the ant *Temnothorax rugatulus* during foraging. 59<sup>th</sup> Annual Meeting of the Entomological Society of America, Reno, Nevada.
- 2011 Sasaki, T., **Pratt, S.C.** Do groups have a larger cognitive capacity than individuals? 59<sup>th</sup> Annual Meeting of the Entomological Society of America, Reno, Nevada.
- 2011 Sasaki, T. Do groups have a larger cognitive capacity than individuals? 48<sup>th</sup> annual meeting of the Animal Behavior Society, Bloomington, Indiana.
- 2011 Shaffer, Z., **Pratt, S.C.** Bees in a box: collective foraging of the ant *Temnothorax rugatulus*. 48<sup>th</sup> annual meeting of the Animal Behavior Society, Bloomington, Indiana.
- 2011 Schaper, G., Sasaki, T., **Pratt, S.C.** Flexibility of nest site preferences based on cue validity in the ant *Temnothorax rugatulus* (*Poster*). 48<sup>th</sup> annual meeting of the Animal Behavior Society, Bloomington, Indiana.
- 2011 Noelck, F., Sasaki, T., **Pratt, S.C.** Behavioral syndromes in nest site selection by the ant *Temnothorax rugatulus* (*Poster*). 48<sup>th</sup> annual meeting of the Animal Behavior Society, Bloomington, Indiana.
- 2011 Shaffer, Z., **Pratt, S.C.**, Sasaki, T. Mapping social networks in house-hunting ants (*Poster*). Annual Meeting of the Society for Integrative and Comparative Biology, Salt Lake City, Utah.
- 2011 Sasaki, T., **Pratt, S.C.** Emergence of group rationality from irrational individuals in ants. Annual Meeting of the Society for Integrative and Comparative Biology, Salt Lake City, Utah.
- 2010 Sasaki, T., Shaffer, Z., Pennick, C., **Pratt, S.C.**, Liebig, J. Ponerine putsch: An agent-based model of dominance hierarchy formation in the ant, *Harpegnathos saltator*. Annual Meeting of the Computational Social Science Society, Tempe, Arizona.
- 2010 Sasaki, T., Janssen, M., Shaffer, Z., **Pratt, S.C.** Evolved communication networks for different payoff distributions. Annual Meeting of the Computational Social Science Society, Tempe, Arizona.
- 2010 Sasaki, T., **Pratt, S.C.** (Ir)rational decision-making in ants. 16<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Copenhagen, Denmark.
- 2010 Shaffer, Z., Sasaki, T., **Pratt, S.C.** Mapping social networks in house-hunting ants. 16<sup>th</sup> International Congress of the International Union for the Study of Social Insects, Copenhagen, Denmark.
- 2010 Sasaki, T., **Pratt, S.C.** (Ir)rationality in ants. 47<sup>th</sup> annual meeting of the Animal Behavior Society, Williamsburg, Virginia.

- 2009 Shaffer, Z., Janssen, M., Sasaki, T., Fewell, J., Anderies, M., **Pratt, S.C.** The foundress' dilemma: An agent-based model of colony founding strategy in ants. Annual Conference of the North American Association for Computational, Social, and Organizational Sciences, Arizona State University, Tempe, Arizona.
- 2008 Shaffer, Z., **Pratt, S.C.**, Fewell, J. Invadability and maintenance of foundress strategy in *Pogonomyrmex californicus*. Meeting of the North American Section of the International Union for the Study of Social Insects, Arecibo, Puerto Rico.

### CONFERENCE PRESENTATIONS BY COLLABORATORS

- 2016 Pavlic, T.P., Walker, S.I., **Pratt, S.C.** From social insects to smart, flexible, adaptive teams of robots: The biomechanics of group decision-making. 25<sup>th</sup> International Congress of Entomology, Orlando, Florida.
- 2008 Overson, R.P., Fewell, J., **Pratt, S.C.**, Clark, R., Gadau, J. From conflict to cooperation: colony founding by unrelated ant queens. Meeting of the North American Section of the International Union for the Study of Social Insects, Arecibo, Puerto Rico.
- 2008 Sewell, W., Stevens, S.A., Gonzalez, D.M., **Pratt, S.C.**, Dunwoodie, S.L., Loomes, K.L., Kusumi, K. Notch Pathway Mutants Display Craniofacial Birth Defects and Disrupt Expression of the Pharyngeal Arch Gene *Barx1*. 67<sup>th</sup> Annual Meeting of the Society for Developmental Biology, Philadelphia, Pennsylvania.
- 2007 Kusumi, K., William, D.A., Saitta, B., Gibson, J.D., Traas, J., Markov, V., Gonzalez, D.M., Anderson, D.M., **Pratt, S.C.**, Rappaport, E.F. Functional genomic analysis of human & mouse cell culture models identifies novel oscillatory genes in somitogenesis & a 5-hour human segmentation clock rate. 66<sup>th</sup> Annual Meeting of the Society for Developmental Biology and First Pan-American Congress in Developmental Biology, Cancun, Mexico.
- 2007 Berman, S., Halasz, A., Kumar, V., **Pratt, S.C.** Bio-inspired group behaviors for the deployment of a swarm of robots to multiple destinations. IEEE International Conference on Robotics and Automation, Rome, Italy.

### TEACHING EXPERIENCE AND TRAINING

#### Course instructor, Arizona State University

- General Genetics (Spring 2007-2013, Fall 2008, Spring 2016).  
 Biometry (Fall 2009-2017, Spring 2017).  
 Sociobiology and Behavioral Ecology (Fall 2016).  
 Readings in Complexity (Spring 2009, Fall 2010).  
 Current Issues in Behavior (Fall 2012, Spring 2016).  
 Life Sciences Career Paths (Fall 2014, Fall 2016).

**Course instructor, Princeton University**

Biocomplexity (Fall 2001).

Animal Minds and Animal Movements (Fall 2002).

Mechanisms of Social Coordination in Animal Groups (Fall 2003).

**Other courses**

Emergent Cognition in Insect Colonies. Interdisciplinary College, Günne, Germany, March 9–10, 2016.

**Educational training**

National Academies Summer Institute on Undergraduate Education, Boulder, Colorado, July 21–25, 2014.

**RESEARCH SUPERVISION****Postdoctoral researchers**

2017–present	Kaitlin Baudier, ASU.
2016–present	Gabriele Valentini, ASU.
2012–2015	Ted Pavlic, ASU.
2011–2015	Aurélie Buffin, ASU.

**Ph.D. students**

2015–present	Andrew Burchill, ASU.
2013–present	Jon Jackson, ASU.
2011–present	Yohan Cho, ASU.
2011–present	Peter Marting, ASU.
2007–2014	Zachary Shaffer, ASU.
2008–2013	Takao Sasaki, ASU.

**Ph.D. committees**

2017–present	Zachary Graham, ASU.
2017–present	Chris Albin-Brooks, ASU.
2017–present	Romain Dahan, ASU.
2017–present	Kelle Dhein, ASU.
2016–present	Zahi Kakish, ASU.
2016–present	Tyler Murdock, ASU.
2016–present	Marielle Abalo, ASU.
2014–present	Ioulia Bernalova, ASU.
2013–present	Richard Simpson, ASU.
2013–present	Melinda Weaver, ASU.
2013–present	Ti Erickson, ASU.
2012–present	Jessica Ebie, ASU.
2012–present	Jason Borchert, ASU.



2012–2017	Jon Bobek, ASU.
2012–2017	Steve Elliott, ASU.
2013–2016	Keziah Katz, Colorado State University.
2012–2016	Brett Seymoure, ASU.
2013–2015	Andrew Quitmeyer, Ph.D. student, Georgia Tech.
2015	Kevin Purce, Ph.D. student, Drexel University.
2014	Rajbir Kaur, IISER Kolkatta (external reviewer).
2010–2014	Kirsten Traynor, ASU.
2009–2013	Josh Gibson, ASU.
2012	Boris Granovski, Ph.D. student, University of Uppsala.
2012	James Herbert-Read, University of Sydney (external examiner).
2009–2012	Dani Moore, ASU.
2008–2012	Adrian Smith, ASU.
2007–2012	James Waters, ASU.

### **Master's committees**

2016–2017	Kaylon Sencio, ASU.
2012	Neal Bradley Jacobson, ASU.
2006–2007	Prashanthi Selvanarayanan, Computational Biosciences, ASU.

### **Undergraduate honors theses**

2013–2016	Grant Doering, ASU.
2012–2014	Blake Colling, ASU.
2013–2014	Lucas Talken, ASU.
2012–2013	Christal Johnson, ASU.
2012	Samantha Jones, ASU.
2011–2012	Forrest Noelck, ASU.
2010–2014	Gage Schaper, ASU.
2009–2010	Michael Bayuk, ASU.
2008–2010	Trisha Morshed, ASU.
2007–2010	Anne Sonnenschein, ASU.
2006–2010	Sean Bowens, ASU.
2007–2009	Michael McDowell, ASU.
2008–2009	Eric Huynh, ASU.
2004–2006	Susan Edwards, Princeton.
2004–2005	Jessica Lee, Princeton.
2003–2004	Yuvon Mobley, Princeton (co-supervisor).
2003–2004	Megan van Beusekom, Princeton (co-supervisor).

### **Other undergraduate researchers**

2016–present	Hillary Polk, ASU.
2015–present	Zakaria Mahmoud, ASU.
2015–2016	Nicole Kallman, ASU.
2015–2016	Melissa Lopez, ASU.

2013–2014	Alex Nachman, ASU.
2013–2015	Michael Zager, ASU.
2013–2014	Kevin Ngo, ASU.
2012–2016	Jacob Evans, ASU.
2013–2014	Taylor Vance, ASU.
2013–2014	Sayah Bogor, ASU.
2013–2014	Hana Putnam, ASU.
2013–2014	Shannon O’Leary, ASU.
2013–2014	Rayyan Sheikh, ASU.
2012	Courtney Bruce, ASU.
2011–2013	Jennifer Briner, ASU.
2011–2012	Nick Poetsch, ASU.
2011–2012	Katie Lundy, ASU.
2011–2012	Dane Kania, ASU.
2011	Sam Fox, ASU.
2011	Aaron Houglum, ASU.
2010–2011	Sawen Aziz, ASU.
2010	Savannah Christy, ASU.
2010	Glenn LeSueur, ASU.
2010	Catlin Nord, ASU.
2010	Meghan Stewart, ASU.
2009–2010	Sarah Drayer, ASU.
2008	Leah Drake, ASU.
2007	Ryan Brady, ASU.
2005–2006	Binna Lieh, Princeton University.
2004–2006	Daniel Glatt, Byram Hills High School and Princeton University.
2000	Morven McLeman, University of Bath.
1999	Sharon Brooks, University of Bath.
1999	Hannah Ellis, University of Bath.
1999	Allison Reading, University of Bath.

## PROFESSIONAL SERVICE

2017–present	Member, Editorial Board of <i>Swarm Intelligence</i> .
2011–present	Member, Editorial Board of <i>PLoS One</i> .
2014–2017	Member and Chair (from 2016), Awards Committee, International Union for the Study of Social Insects, North American Section.
2017	Member, Program committee for SWARM 2017: The 2nd International Symposium on Swarm Behavior and Bio-Inspired Robotics.
2016	Grand Award Judge, Intel International Science and Engineering Fair, Phoenix, May 2016.
2015	Track Organizer, Conference on Complex Systems.
2009	Principal organizer, Spring Workshop of the Office of Naval Research HUNT Project, ASU, Tempe, Arizona, March 9-10.

- 2011 Co-organizer, Workshop on Insect Self-organization and Swarming, Mathematical Biosciences Institute at The Ohio State University, Columbus, Ohio, March 14-18.
- 2009 Member of site review committee, French government assessment of the Neuroscience Center, University of Toulouse.

### UNIVERSITY SERVICE

- 2015–present Director, Animal Behavior Graduate Program, ASU.
- 2013–present Faculty Honors Advisor, Barrett Honors College, ASU.
- 2016–present Faculty Advisor, Students of the Social Insect Research Group, ASU.
- 2014–present Faculty Advisor, ASU chapter of Out in Science, Technology, Engineering, and Mathematics (oSTEM).
- 2017–present Faculty Representative, ASU LGBTQ\* Faculty and Staff Association.
- 2014–present Member, Undergraduate Programs Committee, School of Life Sciences, ASU.
- 2017 Interim Associate Director, Graduate Programs, School of Life Sciences, ASU.
- 2008–2014 Member, Facilities Committee, School of Life Sciences, ASU.
- 2012 Member, Biodesign Graduate Program Advisory Committee, ASU.
- 2011–2012 Member, School of Life Sciences Committee on Complexity, ASU.
- 2009–2012 Member, Users Committee for Interdisciplinary Science and Technology Building 1, ASU.
- 2009–2010 Member, Joint Activities Committee, Consortium for Biosocial Complex Systems, ASU.
- 2009–2010 Co-organizer of Dynamical Discussions seminar series of the Center for Social Dynamics and Complexity, ASU.
- 2008–2009 Member, Education Committee, Center for Social Dynamics and Complexity, ASU.

### COMMUNITY SERVICE AND OUTREACH

- 2006–2007 Podcast interviews for ASU’s Ask-A-Biologist and Science Studio programs.
- 2014 Appeared on STEM Journals, an educational television series aimed at middle school students, April 27.
- 2008–2009 Exhibited paint-marked ant colony in “Marriage of Art, Science and Philosophy” at the American Visionary Arts Museum, Baltimore.

### PEER REVIEW

#### Journal manuscripts (~12 per year since 2004)

*American Naturalist*

2015–2016

<i>Animal Behaviour</i>	2005–2006, 2008–2009, 2011–2012, 2014–2016
<i>Animal Cognition</i>	2007, 2010, 2015
<i>Annales Zoologici Fennici</i>	2011
<i>Apidologie</i>	2004, 2006, 2009, 2016
<i>Applied Physics Letters</i>	2009
<i>Behavioral Ecology</i>	2004, 2006–2007, 2010, 2013–2015
<i>Behavioral Ecology and Sociobiology</i>	2005–2011, 2013, 2015–2017
<i>Behavioural Processes</i>	2016
<i>Biology Letters</i>	2009
<i>BioSystems</i>	2010
<i>Bulletin of Mathematical Biology</i>	2006
<i>Current Biology</i>	2008–2009
<i>Ecological Entomology</i>	2012, 2014
<i>Ethology</i>	2008, 2015
<i>Evolution</i>	2010
<i>Functional Ecology</i>	2015
<i>Insectes Sociaux</i>	2006–2010, 2013–2014, 2016
<i>International Journal of Pest Management</i>	2009
<i>Journal of Apicultural Research</i>	2007
<i>Journal of Comparative Physiology B</i>	2009–2010
<i>Journal of Economic Entomology</i>	2012
<i>Journal of Experimental Biology</i>	2014, 2016
<i>Journal of the Royal Society Interface</i>	2010
<i>Journal of Theoretical Biology</i>	2005–2010
<i>Mathematical Biosciences</i>	2004
<i>Naturwissenschaften</i>	2004, 2008
<i>Philosophical Transactions of the Royal Society</i>	2007
<i>PloS One</i>	2009–2011, 2013, 2015
<i>Proceedings of the National Academy of Sciences</i>	2007–2008, 2011–2013, 2015–2016
<i>Proceedings of the Royal Society B</i>	2009–2011, 2013–2015
<i>Royal Society: Open Science</i>	2015–2016
<i>Science</i>	2008, 2011
<i>Swarm Intelligence</i>	2010, 2016
<i>Trends in Ecology and Evolution</i>	2005

### Grant proposals

Animal Behavior Society	2013, 2017
Association for the Study of Animal Behaviour	2016
Army Research Office	2011–2012
Belgian Science Policy Office	2006
Biotechnology and Biological Sciences Research Council	2002, 2010
Engineering and Physical Sciences Research Council	2010
European Research Council	2015
German Academic Exchange Service	2002
Israeli Science Foundation	2010, 2013–2015

Minerva Stiftung	2015
National Geographic Society	2017
National Institutes of Health	2009, 2012
National Science Foundation	2007–2013, 2016
U.S. Army Corps of Engineers	2014
United States-Israel Binational Science Foundation	2014

### Books

Hyde, <i>Introduction to Principles of Genetics</i> , McGraw-Hill.	2009
Kroft et al., <i>Exploring Animal Social Networks</i> , Princeton University Press.	2007
Moffett, <i>Adventures among Ants</i> , University of California Press.	2009

### HONORS AND AWARDS

2013	Founder's Day Faculty Research Award, ASU Alumni Association.
1998–2000	Long-term Fellowship, Human Frontier Science Program.
1990–1993	National Science Foundation Graduate Research Fellowship.
1990–1993	A.D. White Fellowship, Cornell University.
1987	Short-term fellowship, Smithsonian Tropical Research Institute.

### PROFESSIONAL MEMBERSHIPS

2001–present	Animal Behavior Society.
1994–present	International Union for the Study of Social Insects.
2002–present	International Society for Behavioral Ecology.
2013–present	National Organization of Gay and Lesbian Scientists and Technical Professionals.
2003–present	Entomological Society of America.

### OTHER AFFILIATIONS

2015–present	Fellow, ASU-Santa Fe Institute Center for Biosocial Complex Systems.
2006–present	Member, ASU Center for Social Dynamics and Complexity.

### SELECTED MEDIA COVERAGE

2014	Bees and ants on how to make decisions, <i>Wall Street Journal</i> , September 19.
2013	How is past experience biasing our decision-making? Insights from rock ants. <i>Scientific American</i> blog, November 14.
2013	Madness of crowds: single ants beat colonies at easy choices. <i>National Geographic Phenomena</i> , July 30.
2011	Ants decide rationally together. <i>Science News</i> , web edition, Feb 16.
2009	Collective rationality. <i>Current Biology</i> 19 (15), pp. R629-R630.
2009	Mindless collectives better at rational decision-making than brainy individuals (2009) <i>Scientific American</i> , July 22.

- 2009 Can't decide? Ask an ant. *ScienceNOW*, July 22.
- 2006 Nesting ants show complex behavior. *Cosmos Online*, October 12.
- 2005 Life imitates ant. *Bulletin of the Atomic Scientists* 61(6): 10-11.
- 2005 The bug for painting. *Wired*, October, p. 38.
- 2005 Meeting of the minds. *The Artist's Magazine*, October, pp. 14-15.
- 2002 Making up their tiny minds. Television news report on @discovery.ca, Discovery Channel Canada.
- 2002 Getting the behavior of social insects to compute. *Science* 295: 2357.
- 2001 Ant group dynamics. *Nature Science Update*, 26 July.