SWARMING IN NATURAL AND ENGINEERED SYSTEMS
Edited by R. A. Zachery, S. S. Sastry, and V. Kumar

1470 Experimental Study and Modeling of Group Retrieval in Ants as an Approach to Collective Transport in Swarm Robotic Systems
By S. Berman, Q. Lindey, M. S. Sastry, V. Kumar, and S. C. Pratt
[INVITED PAPER] This study finds that ants can act independently to accomplish complex tasks; application of models derived from ant behavior to robotic systems is investigated.

1482 Dynamic Vehicle Routing for Robotic Systems
By F. Bullo, E. Fratzebl, M. Favone, K. Suda, and S. L. Smith
[INVITED PAPER] Planning optimal routes for multiple vehicles performing different tasks is discussed; fundamental limits on achievable performance are established for tasks that are generated by exogenous processes.

1505 Deterministic Gossiping
By J. Liu, S. Mou, A. S. Morse, B. D. O. Anderson, and C. Yu
[INVITED PAPER] Gossip algorithms can provide information exchange and computation for autonomous vehicles in a group, where each vehicle must make estimates and decisions while ensuring consensus at the group level.

1525 Graph-Theoretic Connectivity Control of Mobile Robot Networks
By M. M. Zavlanos, M. B. Egerstedt, and C. J. Pappas
[INVITED PAPER] This paper develops an analysis for groups of vehicles connected by a communication network; control laws are formulated to accomplish tasks requiring rendezvous, and swarm in group formations.

1541 Eyes in the Sky: Decentralized Control for the Deployment of Robotic Camera Networks
By M. Schwager, B. J. Julian, M. Angermann, and D. Rus
[INVITED PAPER] Control policies for a group of aerial robots observing an area ensure that their coverage is maximized and that guarantees on convergence and stability; simulated and experimental results are presented.

1562 Toward Robotic Sensor Webs: Algorithms, Systems, and Experiments
[INVITED PAPER] Recent advances in wireless sensor networks and collections of stationary and mobile sensors including robots are reviewed in this paper, which also presents novel ideas on system architecture and design.

1587 Control of Ensembles of Aerial Robots
By N. Michael and V. Kumar
[INVITED PAPER] This paper addresses the problem of enabling a group of robots to maintain a formation while avoiding collisions; means to achieve this, and experimental and simulation results, are presented.

On the Cover: This month we consider the interactions found in nature among separate creatures, such as the geese on our cover, to explore the complexities of designing and implementing systems of independent units that can communicate, coordinate, and cooperate with other units.