



We the Swarm: Lessons in Problem-Solving from tiny brains and neuron-less creatures

Biological systems are constantly challenged by their environment. They need to solve complex puzzles such as finding the best use of multiple resources with often only partial and noisy information, and within a limited amount of time. The vast majority of living organisms – such as plants, bacteria, insects – seem to be successful even though they have a very limited ability to acquire and process the multi-faceted information required to find efficient solutions to these complex problems. Our speaker will present some recent research from his lab showing how biological systems make use of their physical properties and simple heuristics to find solutions to complex environmental challenges. He will also discuss the possibilities and limitations of these principles and discuss how they possibly inform us about the nature and origin of biological intelligence.

Simon Garnier is an Associate Professor of Biology at the New Jersey Institute of Technology. He is now the head of the Swarm Lab, an interdisciplinary research lab that studies the mechanisms underlying Collective Behaviors and Swarm Intelligence in natural and artificial systems. The lab's research aims to reveal the detailed functioning of collective intelligence in systems as diverse as ant colonies, human crowds or robotic swarms. Dr. Garnier received a B.Sc. in Cell and Molecular Biology in 2002 from the University of Bordeaux. He received his M.Sc. in Neuroscience and Cognition in 2004 and his Ph.D. in Animal Behavior in 2008 from the University of Toulouse under the direction of Dr. Guy Theraulaz.

Date: Thursday, February 20, 2020, 8:00 pm.
(Refreshments and networking at 7:30 pm.)
Place: Small Auditorium, Room CS 105
Computer Science Building, Princeton University
Information: Dennis Mancl (908) 285-1066
On-line info: <http://PrincetonACM.acm.org>

All Princeton ACM / IEEE-CS meetings are open to the public. Students and their parents are welcome. There is no admission charge, and refreshments are served.

A pre-meeting dinner is held at 6:00 p.m. at Applebee's (3330 US 1, Lawrenceville, near Quakerbridge Mall). Please send email to princetonacm@gmail.com in advance if you plan to attend the dinner.

