

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ  
КАФЕДРА ІНОЗЕМНИХ МОВ  
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ  
ЦЕНТР**

**МАТЕРІАЛИ  
X ВСЕУКРАЇНСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ  
КОНФЕРЕНЦІЇ СТУДЕНТІВ, АСПІРАНТІВ ТА  
ВИКЛАДАЧІВ  
ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО  
ЦЕНТРУ КАФЕДРИ ІНОЗЕМНИХ МОВ**

**“WITH FOREIGN LANGUAGES TO MUTUAL  
UNDERSTANDING, BETTER TECHNOLOGIES AND  
ECOLOGICALLY SAFER ENVIRONMENT”**

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## SWARM ROBOTICS

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Collective behavior, exhibited by a large number of animals that have the same size and work together toward the one goal is called swarm behavior. This term is applied to insects, but can also be used to any other entity or animal. If we look on it wider, we will see that swarming is a collective motion of self-driven entities.

Using swarming is a new approach to coordinate a system that consists of many robots that are mostly simple. One robot interacts with environment and with other robots, causing collective behavior just as in the swarm of insects. It is supposed that simple individual algorithms can produce a complex set of swarm behavior.

Scientists that study swarm robotics, observe natural organisms, taking known facts about their behavior, and put the essence of it into algorithms. Such algorithms need sensors and actuators on robots and also communication between them to work.

The perfect robot swarm can be dropped anywhere and it will reprogram and reconfigure itself according to the situation and work to the target without information of the situation. It is a goal of swarm robotics.

Potential application for swarm robots is really huge. They will be excellent tools for exploring dangerous and unknown places. The most expected use is a disaster rescue operations. More controversial is that they can also be used to form an army in military. Artists may use swarm robots to their interactive art. Also these robots can interact with people so there is one extra application: toys and educating.

To sum it up, swarm robotics is a new way of coordination robots systems that is based on the behavior of natural swarms and may be used in many fields.