

Mother's affection can combat depression in kids

STRESS CAN PASS THROUGH THE PLACENTA TO NEGATIVELY IMPACT THE FOETUS IN WAYS THAT MANIFEST AFTER BIRTH SUCH AS BIRTH WEIGHT, BRAIN DEVELOPMENT AND INCREASED SUSCEPTIBILITY TO VARIOUS AILMENTS

A depressed mother's stress can pass on to infant before his or her life begins in many ways. But according to a new study, parenting strategies can combat the negative impacts of maternal depression on an infant. Stress can pass through the placenta to negatively impact the foetus in ways that manifest after birth such as birth weight, brain development and increased susceptibility to various ailments, said lead author Elisabeth Conradt from University of Utah in the US in a study. "We were curious about whether maternal behaviour could 'buffer' the child against the effects of maternal



depression, and if this buffering could be observed at the level of the infant's epigenome," Conradt added in the study published in Child Development. This study is the first to demonstrate that certain forms of maternal caregiving can have such an effect. The team worked with 128 infants of women with self-reported symptoms of depression and obtained DNA from the infants through cheek swabs and cortisol — a hormone released in response to stress, levels from their saliva. Each infant participated in three

two-minute face-to-face play episodes with their mothers. The first play episode required normal play between mother and infant, the second episode required that the mothers be unresponsive to their infants and the third episode was a reunion episode where mothers were allowed to interact again. Maternal sensitivity, recorded every 30 seconds, was assessed using four scales. Greater levels of maternal sensitivity were related to lower levels of cortisol,

the study found. "Many mothers struggle with depression but interact quite sensitively with their infants. In these instances, the mother may be 'turning on' certain genes that we think allow infants to manage stress in adaptive ways," Conradt stated. While there were no differences in DNA among infants whose mothers scored high on sensitivity, infants whose mothers were both less sensitive and had high depressive symptoms had higher levels of methylation and more cortisol.

Human labour may be obsolete by 2045

Within 30 years, machines will be capable of doing almost any job that a human can, making human labour obsolete, a US scientist has said. "We are approaching a time when machines will be able to outperform humans at almost any task," said Moshe Vardi, a computer scientist at US-based Rice University. "I believe that society needs to confront this question before it is upon us: If machines are capable of doing almost any work humans can do, what will humans do?" phys.org quoted Vardi as saying on Saturday. Vardi will be addressing the issue "Smart Robots and Their Impact on Society," at the annual meeting of the American Association for the Advancement of Science in Washington



— one of the world's largest and most prestigious scientific meetings. "The question I want to put forward is, 'Does the technology we are developing ultimately benefit mankind?'" Vardi said. At the event he would be presenting evidences about pace of advancement in the field of artificial intelligence (AI) is increasing. "A typical answer is that if machines will do all our work, we will be free to pursue leisure activities," Vardi noted, adding "I do not find this a promising future, as I do not find the prospect of leisure-only life appealing. I believe that work is essential to human well-being." The scientist asked the humans to rise to the occasion and meet this challenge before human labour becomes obsolete.

Manage risk of smart toys for kids, parents warned

Finland-based online security and privacy company F-Secure has warned parents to become more aware of the threats posed by new Internet of Things (IoT) toys designed for kids. Smart toys are essentially toys that connect to the internet and are set to become a large product category for IoT devices. Last year's well-known cyber attack on Hong Kong-based digital learning products VTech Holdings exposed the data of 6.4 million children, triggering a panic about the security and privacy risks these toys carry for kids. "The thing that parents need to know about smart toys is that they are new terrain for parents and kids, but also manufacturers," Sean Sullivan, security advisor at F-Secure, said in a statement.

"Smart toys and IoT devices in general are a competitive market and we have already seen numerous examples where security is treated as an afterthought. Companies are more interested in growing their customer base than securing customer data so we will probably continue to see these cracks in smart toy security," Sullivan explained. The security company also mapped directives for parents about IoT devices. The company said the best approach for protecting kids is for parents to become involved in how their kids learn to use devices or online services. "Learning should work both ways and be done together — parents can learn about issues facing the kids, and kids can learn things parents



understand, like the dangers of interacting with strangers," Mikael Albrecht, F-Secure researcher, noted. Parents should pay attention and understand what services their children are using. "It is ok for parents to use technical

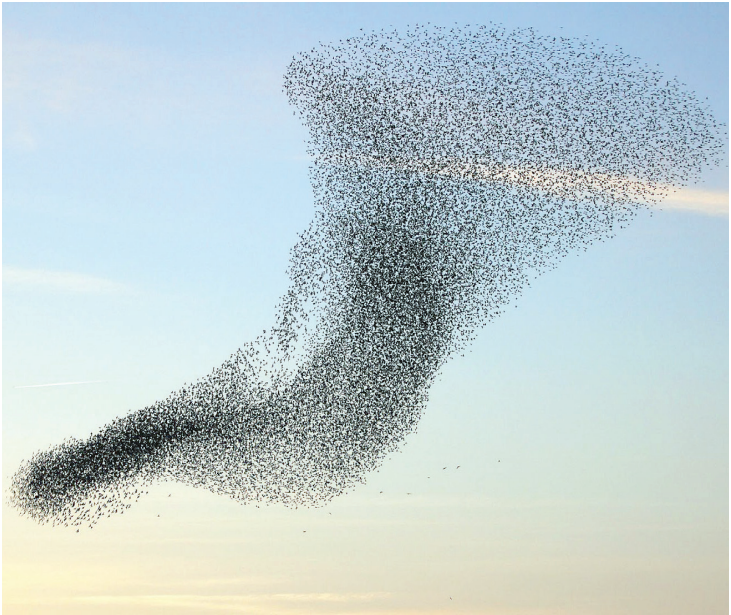
solutions to keep an eye on what kids are doing online, but parents should be open about this and prepared to ease off as kids age," Albrecht said, adding that "chances are kids will figure out these technical controls anyway."



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Keep calm and observe ant

We often hear teachers categorising each class they handle as 'nerdy', 'troublesome', 'naughty' and so on. Many may wonder how come whole classes, consisting of similar students, can earn different names. But experienced teachers pinky promise on their profession that the behaviour of a class as a whole is different from the behaviour of its individual students. In 1989, Gerardo Beni and Jing Want introduced a term called 'swarm intelligence' to explain the collective behaviour of decentralized natural systems. Without any obvious control structure the interaction of such system with their surroundings will, in time, lead to the emergence of a global behaviour. The behaviour of a colony of ants is one of the best examples of a biological swarm intelligence system, although the same can sometimes be said of aunts.



Unlike aunts, however, ants enslave creatures and farm by domesticating and cultivating them. Harvesting, herding and milking takes place in the ants' colonies similar to that of a modern civilisation. Leafcutter ants specialise in fungus-forming and herder ants rear aphids as their dairy cows. Ant colonies employ servant ants or serv-ants to clean up fungus gardens and maintain farms. When new pets are brought to colonies, serv-ants offer them a nice welcome drink, by releasing chemicals, to make them move slower and become more docile; clip their wings so that they won't fly away. Although ants take away the pets' freedom, in exchange they provide care and protection. Bullet ants and bulldog ants are so poisonous they can kill a human. I don't know what these tyr-ants will do when they come to know that we often crack eleph-ant jokes to tease them. The flocking behaviour of groups of birds during foraging or in flight is also another example of swarm intelligence. Scientists have modelled flocking behaviour with three simple rules: separation, alignment and cohesion. With these rules flocks move in a more realistic and complex way than is possible otherwise. It is reported that the wildebeest stampede in "The Lion King" and the flocking bats in "Batman Returns" are realistically modelled using the swarm technology. Next time you watch a battle scene in a movie with thousands of soldiers, such as "The Lord of the Rings", remember that it could have been simulated with the swarm technology which is cheap and robust. Other examples of swarm intelligence include: animal herding, bacterial growth and fish schooling. The application of swarm intelligence is very popular in the field of artificial intelligence too. The swarm of robots jumping on Del Spooner's (Will Smith) car and causing him to crash in the blockbuster movie "I, Robot", is an example of swarm intelligence.

The robot army trying to stop Sana's (Aishwarya Rai) wedding in Rajinikanth's famous Indian movie, "Enthiran (Robot)", is also another example of the use of swarm intelligence in robotics. Scientists have already developed self-charging cooperative swarm robots that can be useful in environment monitoring, convoy protection and moving target tracking. Flock-like behaviour is exhibited amongst humans, too; for example, a crowd fleeing from the sound of gunfire. Many airlines already have adopted swarm intelligence principles while boarding passengers onto their planes. Further research in this area could help civic authorities with better crowd management, without stampedes or blockades. A teacher struggling to control a noisy class was really surprised at how the whole class became silent well before the principal, passing by, was visible. One such class with better swarm intelligence had the following written on the board:

When we sit together, we're students
If they do, they're scholars
When we correct, it's overwriting
If they do, it's correction
When we copy, we're cheaters
If they do, it's quote
When we don't do our work in time, we're sluggish
If they don't, they're busy
When we joke, we're jokers
If they do, they're witty.