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'If somebody tells you they can protect data, it is not true'

Turing Award-winning computer scientist Joseph Sifakis talks on how secure is Aadhaar data and various tech issues that users need to be cautious about



Joseph Sifakis

PEARL MARIA D'SOUZA @ Mangaluru

COMPUTER scientist Joseph Sifakis, winner of Turing Award, considered equivalent to Nobel prize for computing, in 2007, expressed concerns over security in systems today. "There is no secure system today; all systems can be intruded for sure," he said.

He won the prize for developing a technique whereby one can use a rational and mathematical model to ensure a system will act correctly. It replaces the expensive and rigorous trial and error method on prototypes.

"When I started my research, engineers were first building systems and then testing it to see if it works. My idea was to replace this system with a mathematical model and make some logical reasoning," he said about his contribution towards system verification, where there is foolproof

ing before forming a system.

In system verification, you check for two major aspects - safety and security, he said. Safety means if in a system, something goes wrong, it was because of faulty design. It can be rectified with assistance because you understand how materials behave. However, security is the major issue. "Security is about resistance to human attacks. That cannot be predicted. It is very hard to cope with human attackers because they use imagination," he said.

A major debate on Aadhaar card, about data security and privacy was addressed by prof Sifakis. He said there are security threats and serious concerns for privacy. "There is no absolute protection. Please understand that. If somebody tells you we can protect this data, it is not true. There is no guarantee," he said.

"You cannot calculate the degree of security for a system. Nobody can say that

His India connection

In 1980's Sifakis collaborated with Airbus to build the first fly-by-wire aircraft. India also bought the A320 during Rajiv Gandhi's time. Sifakis has almost 50 years of computer expertise, beginning from 1970.

this system cannot be intruded. There is absolutely no theory to do that. We know that systems have a lot of loopholes and can be intruded. So, that is the issue. Privacy is an important issue," he observed.

He said security was a global problem, extended even to data security. "Intruders do not come to alter your data. They want to be seamless. So, with spywares, they stay hidden, sometimes even for 10 years. In special cases, they make an attack if needed," he said.

Cyber war is a serious game, he said,

comparing it to nuclear war. "If for instance, you have hidden virus in your critical infrastructure (one that controls your electricity and water distribution), and there is war, the enemy can neutralise all the infrastructure, and the damage can be huge. This may also reduce the ability of one country to attack another," he said.

About internet of things, he said, the dream is to create an interconnectness among embedded systems (automated systems) that provide service (automatic car, toaster), he said.

"With embedded systems in place, the internet can collect the data. Some of the data can be sent to the cloud. The cloud can analyse the data where you learn how people and systems behave. Then, makes predictions, and sends back orders.

The uses are vast, he says, from a smart transport systems where drivers can get instruction in case of bad weather condi-

tions, to a smart grid, where different sources of energies can be combined and redistributed automatically.

"If you have sunny weather here, you will be producing a lot of solar energy, which you can export to the north of india automatically," he said.

Interestingly, there are impacts for agricultural sector too. The fastest developing sector in robotics is Agriculture, he said. "You have robots - autonomous vehicles - that can crop fields. This will be generalised. Yes, there will be high efficiency, but unemployment is really an important question, he added.

The fourth Industrial revolution, he said would have extensive use of robots. The vision is to be able to create your own objects, to design furniture, be the creator. "Design will be something very important and will be taught in schools, like other subjects," he envisioned.