

Internet, a perfect formula for the dark side

50 years after internet conception, dark side stirs fear

As the University of California at Los Angeles marks the anniversary, Kleinrock is opening a new lab devoted to all things related to the internet -- particularly mitigating some of its unintended consequences on the internet which is now used by some four billion people worldwide



Leonard Kleinrock poses beside the first Interface Message Processor (IMP) in the lab where the first internet message was sent, at the University of California Los Angeles

AFP | San Francisco

On October 29, 1969, professor Leonard Kleinrock and a team at the University of California at Los Angeles got a computer to “talk” to a machine in what is now known as Silicon Valley.

The event gave birth to a network that later became known as the internet -- hailed at first as a boon to equality and enlightenment, but with a dark side that has emerged as well.

As UCLA marks the anniversary, Kleinrock is opening a new lab devoted to all things related to the internet -- particularly mitigating some of its unintended consequences on the internet which is now used by some four billion people worldwide.

“To some point it democratizes everyone,” Kleinrock said. “But it is also a perfect formula for the dark side, as we have



The internet has grown to connect billions of users around the world, as seen in this Facebook map from 2010, but has also allowed malicious actors to operate on a wide scale



Computer scientists who created the system that became the internet say they did not foresee some of the ills that it would create

learned.”

So much is shouted online that moderate voices are drowned out and extreme viewpoints are amplified, spewing hate, misinformation and abuse, he contended.

“As engineers, we were not thinking in terms of nasty behaviour,” said Kleinrock, 85.

“I totally missed the social networking side. I was thinking about people talking to computers or computers talking to computers, not people talking to people.”

The new Connection Lab will welcome research on topics including machine learning, social networking, blockchain and the internet of things, with an eye toward thwarting online evils.

Kleinrock expressed particular interest in using blockchain

technology to attach reputations to people or things online to provide a gauge of who or what to trust.

For example, someone reading an online restaurant review would be able to see how reliable that author’s posts have been.

“It is a network of reputation that is constantly up to date,” Kleinrock said.

“The challenge is how to do that in an ethical and responsible fashion; anonymity is a two-edged sword, of course.”

Businesses being bad

He blamed many of the internet’s ills on businesses hawking things that are outdated or unneeded, violating privacy to increase profit.

Instead of clever lone hackers that vexed the internet in its ear-

ly days, bad actors now include nation states, organised crime and powerful corporations “doing big, bad things,” Kleinrock lamented.

“We were not the social scientists that we should have been,” Kleinrock said of the internet’s early days.

He regretted a lack of foresight to build into the very foundation of the internet tools for better authenticating users and data files.

“It wouldn’t have avoided the dark side, but it would have ameliorated it,” he said.

He remained optimistic about the internet’s woes being solved with encryption, blockchain or other innovations.

“I do still worry. I think everyone is feeling the impact of this very dark side of the internet that has bubbled up,” Kleinrock said.

“I still feel that the benefits are far more significant; I wouldn’t turn off the internet if I could.”

What kind of beast?

In the early days, US telecom colossus AT&T ran the lines connecting the computers for ARPANET, a project backed with money from a research arm of the US military.

A key to getting computers to exchange data was breaking digitized information into packets fired between machines with no wasting of time, according to Kleinrock.

A grad student began typing “LOG” to log into the distant computer, which crashed after getting the “O.”

“So, the first message was ‘Lo’ as in ‘Lo and behold,’” Kleinrock recounted. “We couldn’t have a better, more succinct first message.”

Kleinrock’s team logged in on the second try, sending digital data packets between computers on the ARPANET because funding came from the US Advanced Research Projects Agency (ARPA) established in 1958.

Credit for creating the internet is a topic of debate, since there are a series of key moments in its evolution including arrival of protocols for how data is routed, and creation of the World Wide Web system of online pages.

The name “internet” is a shortening of the “internetworking” allowed when one computer network could collaborate with another, according to Marc Weber, curatorial director at the Computer History Museum in Silicon Valley.

“The billion dollar question is, what kind of beast has the internet become?” Weber asked.

“It has become the default main way for humans to communicate, and that is not small.”

While marking its 50th anniversary, the internet as we know it is a “rowdy teenager” in the eyes of Internet Society chief technology officer Olaf Kolkman.

“The internet has done more good than harm,” Kolkman said.

“The biggest challenge we have in front of us is that while we cope with big problems enabled by global connectivity that we don’t throw the baby out with the bath water.”



The scientist who sent the first message on the forerunner to the internet says that the benefits have been greater than the harms it has created

Now genetically modified cotton is human food source

Reuters | Washington

US regulators have given green light for genetically modified cotton to be used for human consumption, paving the way for a protein-packed new food source - edible cottonseed that tastes a bit like chickpeas - that its developers said could help tackle global malnutrition.

The Food and Drug Administration’s decision on the cotton plant developed by Texas A&M University scientists means it is allowed as food for people and all types of animals.

Texas A&M AgriLife Research plant biotechnologist Keerti Rathore said the scientists are holding discussions with companies and hope to have the plant commercially available within



Genetically modified cotton plants with an edible cottonseed trait are seen growing near Belvidere, North Carolina

about five years. Rathore said the team also will explore seeking regulatory approval in other countries starting with Mexico.

“Yes, we are fully aware of the resistance to GMOs in many countries, but I remain hopeful that counties who are desperate for food will adopt this technology,” Rathore added.

Cotton is grown in more than 80 countries, with its fibre used to make textiles and cottonseed currently used among other purposes to feed animals such as cattle and sheep that have multiple stomach chambers. Ordinary cottonseed is unfit for humans and many animals to eat because it contains high levels of gossypol, a toxic chemical.

Rathore’s team used so-called RNAi, or RNA interference, tech-

nology to “silence” a gene, virtually eliminating gossypol from the cottonseed. Gossypol was left at natural levels in the rest of the plant because it guards against insects and disease.

“With adoption of this technology, cotton becomes a dual-purpose crop. It requires no additional effort on the part of farmers or inputs or land for cultivation. So, it will make cotton farming more sustainable,” Rathore said.

The genetic modification does not affect the plant’s fiber for use in textiles.

The US Agriculture Department last year lifted the regulatory prohibition on cultivation by farmers of the modified cotton plant ahead of the FDA decision on human consumption.

“Cottonseed can be consumed in many ways. We will continue to crush it to extract oil (usable for cooking). However, now the leftover meal with its high protein content can be used as a protein supplement in tortilla, bread and baked goods. The seed kernels can be roasted and eaten as snack or as peanut butter type of spread or in protein bars,” Rathore said.

“To me it tastes like chickpea. Imagine hummus without any other ingredients added to it,” Rathore added.

Many of the world’s cotton-producing countries, particularly in Asia and Africa, have populations that face malnutrition that could be addressed with the new plant, Rathore said.