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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
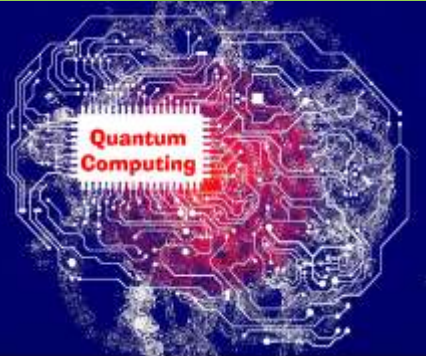
Vision
"To be a nationwide recognized department that produces versatile computer engineers, capable of adapting to the changing needs of computer and related industry".

Mission
1. To impart quality technical education with skills, knowledge and attitude to succeed in Computer Science & Engineering careers.
2. To provide knowledge of emerging trends in computer and related industry and foster environment of lifelong learning.
3. To develop graduate engineers who investigate research, design and find workable solutions to complex engineering problems with awareness and concern for society and environment.

Seminar & Workshop

1.Two days workshop on *"Data Analysis using Python" on 28th & 29th September, 2018.*

2. Industry Awareness Program Hands-on Workshop *on "Internet of Things (IoT) and Machine Learning" on* 15th September,2018

3. Two days Seminar on *"Cryptography & Network Security" on 13th & 14th August, 2018.*

Quantum Computing: The Future Of Computers

With the advent of a new era of digitalized information, processing an information at **the top speed has become one of the key aspects of modern day's worries. How can** we process data faster? This thought has given rise to a number of solutions. One such solution is Quantum Computing.

Quantum Computing as the name suggests is the path the data is processed in a quantum-mechanical phenomena which uses superposition and entanglement techniques to solve problems. A normal computer basically uses binary digits to process information and thus have only one definite state at a time, i.e. 1 or 0 but a quantum computer uses the theory of superposition of states to process both 0 and 1 digits simultaneously, hence making it more reliable and useful and faster than the ordinary computers. A very large problem can be solved so easily using quantum computers than normal computer. Because of the processing speed of quantum algorithms now a **hacker can breach into anyone's personal computer without breaking a sweat, hence** more advanced and quantum security issues must be designed to prevent this threat. Using of quantum entanglement and cryptography can give rise to an ultimate security protocol which would be inaccessible by almost any hacker.

Quantum computing has given us a new angle to look at things. Without this the search through any long algorithms would take a considerable amount of time but with Quantum Search such tasks would only take a matter of minutes hence conserving time and helping us to be more efficient.

The present development of quantum computers are still in the preliminary stages as **we haven't yet discovered the ultimate technique to use these theories to their fullest** potential. Researchers are being carried on both by the government as well as military forces, once completed Quantum Computing will be the future of mankind and quantum computers will be the next gen computers for us.

Aniket Ghosh

CSE,3rd Year, SIT

SOPHIA – An *AI* Asset

Sophia, a humanoid robot is being highlighted all over the world these days.

The thing which we are observing is just a mechanical body, but at the backend there are lot of Artificial Intelligence (AI) Model which has been used to improve its way of thinking after every **passage of time. Let's see** how Artificial Intelligence is being used to make it perfect. Like we all know that Sophia is entirely dedicated to the Human-Machine interaction which is the future. For making human Language understandable, Natural Language Processing (NLP) has been used, which is a sub-field of AI. Using NLP what actually happens is, the machine can respond to the user even if the message is not pre-programmed. Now comes the Decision Making. If we are talking about a Humanoid robot, then just like Human Being, A machine should also make decisions. So for this Artificial Neural Networks (ANN) has been implemented in the Sophia Robot.

ANN works just like our Biological Neural Network works. For recognising the faces, Image Recognition technique has been used. The camera which is present in the mechanical eyes of Sophia take multiple shots and process those images using Deep Learning to remember the people to whom she met.

These AI technologies are the only things which helped in bringing the idea of a Humanoid Robot into a working model. The rate at which Artificial Intelligence Applications is increasing, In future it will surely replace the Human Beings at places where currently we are working. Though the Guidance will always be given by the Human Beings only.

Abhinav Kumar

CSE - 2nd Year, SIT

PHOTO GALARY

Amrit Raj, CSE , 2nd Year

Amrit Raj, CSE , 2nd Year

LI-FI

Imagine if the LED bulbs in our house could transmit high-speed data without WiFi or broadband. Or an LED-lit movie billboard that can relay high-quality promotional videos and songs to our smartphone as we pass by in a crowded mall? Well, these scenarios are not out of any sci-fi thriller the government of India is already testing technology that can enable this and other features. Light Fidelity (Li-Fi) is high speed technology which enables data transmission through visible light communication i.e it transmits high-speed data using lights.Google and Nasa have been testing this technology. Li-Fi requires three basic hardware devices to function: an LED lighting system, a router (which will be installed along with the lighting system), and a receiver equipped with decoder (in order to decrypt the light signal). For instance, the transmitter would be an LED bulb and the receiver would be a smartphone.In a recent pilot project, the ministry of electronics and IT successfully used a technology i.e LiFi (Light Fidelity). Radio Frequency technology requires spectrum which is very limited and licensed. But a Li-Fi network — which works on ethernet or a WiFi-enabled LED light — when integrated with solar panels, can further cut the cost. Li-Fi can be used in areas where Wi-Fi is either prohibited or doesn't work efficiently such as aviation, healthcare, environment etc. In the aviation industry, for example, Li-Fi technology brings a lot of value. One can use it in the cockpit securely without any requirement for cables. In fact, the primary advantage of Li-Fi is that it works in electromagnetic sensitive areas.Now the challenge is the price. Since the technology has not been adopted on a large scale, and mass production of Li-Fi enabled devices isn't a reality yet, it is more expensive than Wi-Fi. Once this technology is adopted on a mass scale, the price points will be similar. It is imperative to note that Li-Fi isn't out there to replace Wi-Fi, but compliment it.

Prasun Roy Chowdhury

CSE-3rd Year, SIT

Publication Updates ..

Paper publications by our faculties:

1. **Anupam Mukherjee, Sourav De, Siddhartha Bhattacharyya, Jan Platos, "Chicago Crime Data Analysis Using PIG in Hadoop", 4**th IEEE International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN 2018), November 22-23, 2018, at RCCIIT, Kolkata. IEEE Conference No: 45142.

2. **Anupam Mukherjee, Sourav De, Siddhartha Bhattacharyya, "Indian Crime Data Analysis in Hadoop Framework", 7**th **International Conference on "Computing, Communication and Sensor Network", 27th** -28th October, 2018, organized by Applied Computer Technology, Kolkata, In association with International Association of Science, Technology and management. Sponsored by Aliah University, Page: 17, ISBN: 81-85824-46-2.

3. Anupam Mukherjee, Sourav De, Siddhartha Bhattacharyya. (2018)(In press), A survey on big data: an emerging imparity and revolution in digital world, International Journal of Hybrid Intelligence, Inderscience

4. **Mithun Roy and Indrajit Pan, "Most Influential Node Selection in Social Network using Genetic Algorithm", In Proc.** International Conference on Research in Computational Intelligence and Communication Network, 2018 (In press).

5. **Mithun Roy and Indrajit Pan, "Overlapping Community Detection using Clique Proximity and Modularity Maximization", In Proc. International Conference on Research in Computational Intelligence and Communication Network, 2018** (In press)

6. **Sumana Kundu, Goutam Sarker, "A Multi-**level Integrator with Programming Based Bososting for Person Authentication using Different Biometrics", Journal of Information Processing Systems, Vol. 14, No. 5, October 2018, pp. 1114-1135.

The expert in anything was once a beginner

Glimpses of Students' Achievements

Subham Sarda (Presently in CSE 8th Semester) presented his IEEE conference paper at Fourth International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN 2018), held on 22-23 **November 2018 at RCCIIT, Kolkata. Title of his paper is "IoT and Cloud based Integrated System For Accident Reporting And Vehicular Health Monitoring".**

Sandip Prasad Jaiswal
Pass out Batch: 2019 CSE

ThoughtWorks

MD Toufikuddin
Pass out Batch: 2019 CSE

OPENTEXT

Subhajit Das
Pass out Batch: 2019 CSE

OPENTEXT

Sushil Kumar Gupta
Pass out Batch: 2019 CSE

TATA
TATA CONSULTANCY SERVICES

Sheetal Chouhan
Pass out Batch: 2019 CSE

BOSCH
Invented for life

Monideep Banerjee
Pass out Batch: 2019 CSE

BOSCH
Invented for life

Capgemini

Raj Mittal , Laboni Sarkar, Rajib Chowdhury
Pass out Batch: 2019 CSE

PERSISTENT

Subham Debnath, Aditya Ghosh
Pass out Batch:2019 CSE

Alumni Talk

MAJOR WRICKDEV GHOSH, CSE, Batch 2003 -07 [System Manager, Cyber Emergency Response Team]

The four years at the Computer Science and Engineering department has held me in good stead as I complete 10 long years as an officer of the Corps of Signals of the Indian Army. Be it deploying a surveillance network to stop infiltration in the borders of Jammu and Kashmir, be it establishing a high speed network to relay live drone feeds in Punjab, to establishing satellite ground stations in the icy heights of Uttarakhand I had the chance to solve many real world engineering problems because of the solid foundation I received at the department. I thank my professors and my alma mater who helped shape me into who I am today.

KUMAR NISHANT, CSE, Batch 2013-17 [Pursuing M.Tech at IIT, Kanpur]

Dept. of CSE, SIT... The first place, I introduced with the Computer Science world. It was a totally different journey for me as I didn't belong to CS background. I am very thankful to my teachers who taught and supported me throughout my 4 years of "Engineering :)".Computer Science is fun but has many challenges. I gained interest in my core subject and had the zeal to explore it, how can I forget faculty found that enthusiasm in me and encourage me for the higher study as of result now, I am pursuing M.Tech at IIT, Kanpur.

It is advisable to juniors "Be interactive with your mentors and show your passion about courses. They (mentors/teacher) are always there to guide you on the right path."

Events Roadmap .....

Hands-on Workshop on "Internet of Things (IoT) & Machine Learning" on 15th September,2018

Two days workshop on "Data Analysis using Python" on 28th and 29th September,2018

Two Days Seminar on "Cryptography and Network Security "on 13th and 14th August,2018

2nd Best Business Unit Corner award at Intel India

Hands –on Workshop on "Data Analysis using Python"

Fresher's Welcome on 1st September,2018

Teacher's Day ,2018

Republic Day Celebration,2019

Uttarbanga Medha Ratna Utsav,2019