Volume-1
Issue-4

PIXELS

MAY - 2021

News Letter

vega
CSE Students Teachers Association

Department of Computer Science and Engineering

ALUMNI TALK -5

The Department of Computer Science and Engineering organized Alumni talk series -5 on the topic "THE NEW TRENDS IN RECRUITMENT" via Google Meet platform.The session was handled by Mr.Vijay Venugopal,2013-2017 pass out of CSE Department.He is a Software engineer in TCS ,Cochin.He shared about the recruitment and its new trends like simulated gaming,hackathone, ideathons, internships, interviews .The students from fourth,sixth and eighth semesters ,the alumni and faculty members of CSE department of SNGIST Group Institutions were the participants.

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PLACEMENTS

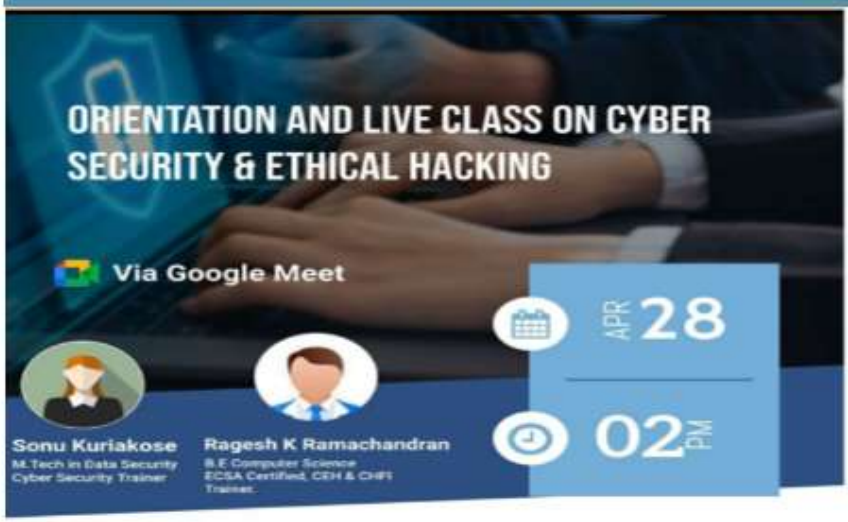
Lakshmi Samajya
Assistant System Engineer Trainee
2015 -2019

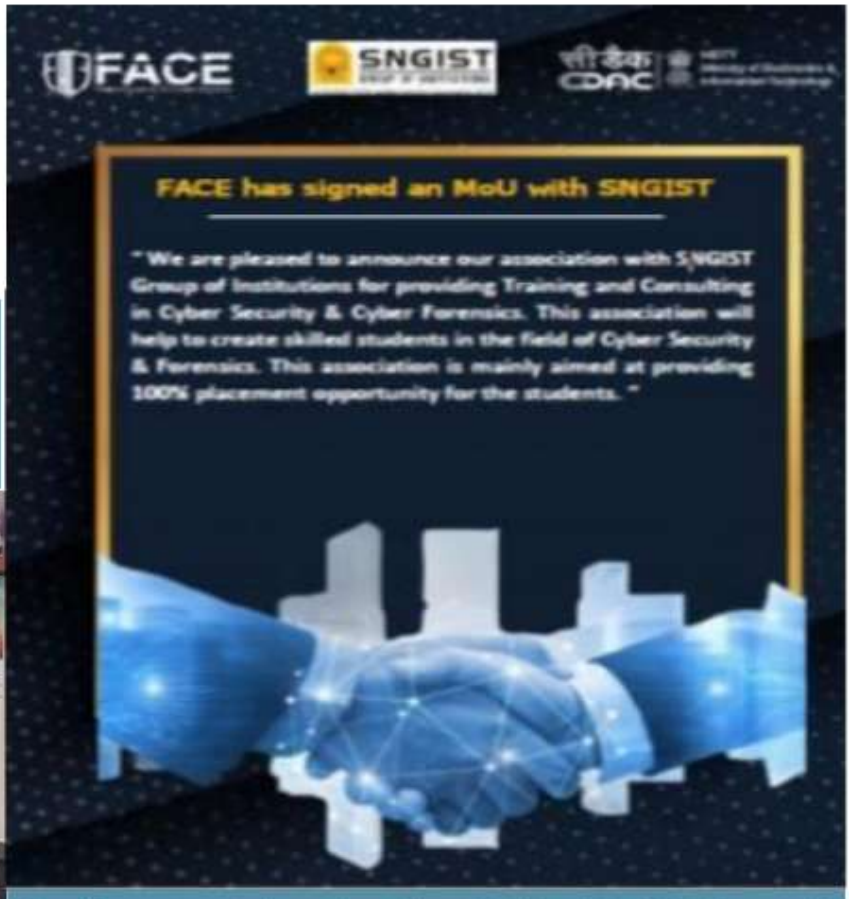
Abhinay A
Member of technical staff
2016 - 2020

Adish Ks
Software Developer
2016-2020

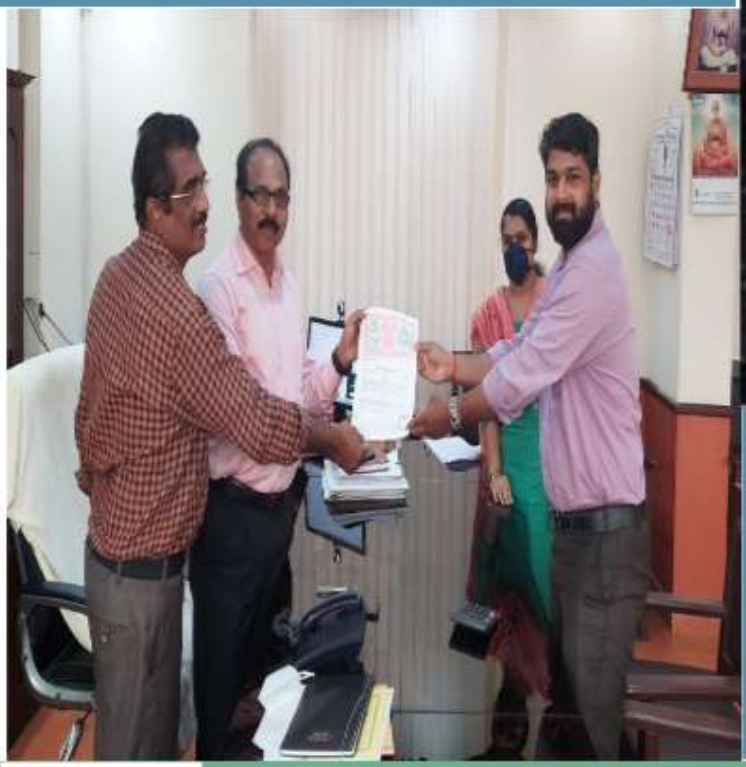
Rahul Prabhu
Assistant system engineer trainee
2016-2020

Jiya Joseph
Assistant system engineer
2015-2019





ACHIEVEMENTS



Cse Department has signed a MoU with CDAC on 21 April.This association will help to create skilled students in the filed of cyber security and forensics.This association is mainly aimed at proving 100% placements for the students.

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STUDENT WEBINAR

"THE PROPOSED SYSTEM FOR CRIMINAL DETECTION AND RECOGNITION ON CCTV DATA USING CLOUD AND MACHINE LEARNING"

The Department of Computer Science and Engineering organized Student Webinar on the topic "Topic : "PROPOSED SYSTEM FOR CRIMINAL DETECTION AND RECOGNITION ON CCTV DATA USING CLOUD AND MACHINE LEARNING" at 2.30 PM via Google Meet platform .He discussed 20 different research papers includes technologies such as image processing,face recognition,face detection,object detection,object recognition,neural networks and proposed two methodologies for automated face recognition. The students from fourth,sixth and eighth semesters and faculty members of CSE department of SNGIST Group Institutions were the participants.The session was handled by ANANTHU M.A ,2017-2021 student of CSE Department.

FACULTY ACHIEVEMENTS

Ajina K A
Assistant Professor
CSE dept

Sreedevi KM
Assistant Professor
CSE dept

Anisha Antu
Assistant Professor
CSE dept

Gayathri Dili
Assistant Professor
CSE dept

Ms. Gayathri Dili, Ms. Rema M K, Ms. Anisha Antu, Ms. Ajina K A, Ms. Sreedevi K M, faculties of CSE Department attended 3 days Faculty Development Programme on "Systemizing Research-Problem Finding to Patenting" conducted by the Department of Computer Science and Engineering, Rajagiri School of Engineering and Technology from 29 March 2021 to 31 March 2021.

Ms.Reshmi G Nair , Associate professor of CSE Department completed 7 day Faculty Training program on Web App development using Bootstrap with AWS Cloud hosting from March 22nd to April 5th by LinkurCode

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Quantum computers

Vysakh Sivan
S6 CSE (2018-2022)

The term quantum computing gained momentum in the late 20th century and these systems aim to utilize capabilities to become highly-efficient. Quantum computing is the use of quantum phenomena such as superposition and entanglement to perform computation. Computers that perform quantum computations are known as quantum computers. They are believed to be able to solve certain computational problems, such as integer factorization(which underlies RSA encryption), substantially faster than classical computers. The study of quantum computing is a subfield of quantum information science. It is likely to expand in the next few years the field shifts toward real-world use in pharmaceutical, data security and other applications..Quantum computing began in the early 1980s when physicist Paul Benioff proposed a quantum mechanical

of the Turing machine. Richard Feynman and Yuri Manin later suggested that a quantum computer had the potential to simulate things a classical computer could not. In 1994, Peter Shor developed a quantum algorithm for factoring integers with the potential to decrypt RSA-encrypted communications. Despite ongoing experimental progress since the late 1990s, most researchers believe that "fault-tolerant quantum computing is still a rather distant dream." In recent years, investment in quantum computing research has increased in the public and private sectors. On 23 October 2019, Google AI, in partnership with the U.S. National Aeronautics and Space Administration (NASA),

claimed to have performed a quantum computation that was infeasible on any classical

- computer.There are several types of quantum computers (or rather, quantum computing systems), including the quantum circuit model, quantum Turing machine, adiabatic quantum computer, one-way quantum computer, and various quantum cellular automata. The most widely used model is the quantum circuit, based on the quantum bit, or "qubit", which is somewhat analogous to the bit in classical computation. A qubit can be in a 1 or 0 quantum state, or in a superposition of the 1 and 0 states. When it is measured, however, it is always 0 or 1; the probability of either outcomes depends on the qubit's quantum state immediately prior to measurement.

Why do we need quantum computers?

As we said earlier quantum computer process quantum information in forms of qubits. A quantum computer can process the data much more faster than a classical computer for example .

The google claims it has designed a machine than can solve a problem in 200 seconds where the worlds fastest supercomputer will take about 10,000 year's to figure it out. A quantum system can be very useful for conducting many virtual experiments and sifting through vast amount of a data. Still there are many other applications and they are:

Cryptography

A notable application of quantum computation is for attacks on cryptographic systems that are currently in use. Integer factorization, which underpins the security of public key cryptographic systems, is believed to be computationally infeasible with an ordinary computer for large integers if they are the product of few prime numbers (e.g., products of two 300-digit primes).[21]By comparison, a quantum computer could efficiently solve this problem using Shor's algorithm to find its factors. This ability would allow a quantum computer to break many of the cryptographic systems in use today, in the sense that there would be a polynomial time (in the number of digits of the integer)

algorithm for solving the problem. In particular, most of the popular public key ciphers are based on the difficulty of factoring integers or the discrete logarithm problem, both of which can be solved by Shor's algorithm.

· Search problems

The most well-known example of a problem admitting a polynomial quantum speedup is unstructured search, finding a marked item out of

list of n items in a database can be a headache. This can be solved by Grover's algorithm more efficiently and by adding the power of a quantum system can decrease the time taken by a supercomputer.

. Machine learning

Since quantum computers can produce outputs that classical computers cannot produce efficiently, and since quantum computation is fundamentally linear algebraic, some express hope in developing quantum algorithms that can speed up machine learning tasks. For example, the quantum algorithm for linear systems of equations, or "HHL Algorithm", named after its discoverers Harrow, Hassidim, and Lloyd, is believed to provide speedup over classical counterparts

. Quantum supremacy

John Preskill has introduced the term quantum supremacy to refer to the hypothetical speedup advantage that a quantum computer would have over a classical computer in a certain field. The authors claim that a classical contemporary supercomputer would require a computational time of 600 million years to generate the number of samples their quantum processor can generate in 20 seconds.

Obstacles

- As there is more technical advantage in a quantum computer there is also some technical challenges in building a large scale quantum computer.

. Physicist David DiVincenzohas listed these requirements for a practical quantum computer:

. Physically scalable to increase the number of qubits

. Qubits that can be initialized to arbitrary values

Quantum gates that are faster than decoherence time

. Universal gate set

. Qubits that can be read easily

Sourcing parts for quantum computers is also very difficult. Many quantum computers, like those constructed by Google and IBM, need Helium-3, a nuclear research byproduct, and special superconducting cables made only by the Japanese company Coax Co. And another main probem faced is the control of multi-qubit systems requires the generation and coordination of a large number of electrical signals with tight and deterministic timing resolution.

- This has led to the development of quantum controllers which enable interfacing with the qubits. Scaling these systems to support a growing number of qubits is an additional challenge.
- If such a system becomes more practical and portable then it will do wonders. It could solve many problems faced in the areas of cryptography, big data, machine learning etc. And it's data processing speed will be astonishing that it can predict the chance of occurrence of a tsunami or any seismic events or calculate the probability of crashing into star or debris when jumping into the hyperspace in the long future.