

A Report on the Webinar
on
Perspectives of Block Chain and Its Application in Healthcare Industry

A webinar was organized jointly by *Department of Information Technology* and *Department of Computer Applications, Heritage Institute of Technology* on September 25th, 2021, 11 am. The joining link for the webinar was <https://meet.google.com/fsy-iqci-obi>.

Organizing Chairs:

Prof. Siuli Roy, Department of Information Technology, *Heritage Institute of Technology*
Professor Souvik Basu, Department of Computer Applications, Heritage Institute of Technology

Members:

All Faculty & Staff members of Department of Information Technology and Department of Computer Applications, Heritage Institute of Technology

Speaker Name & contact details:

Debabrata Datta
Professor, Heritage Institute of Technology, Kolkata
Former Nuclear Scientist & Head RP&AD
Bhabha Atomic Research Centre
Mumbai – 400085
Email: debabrata.datta@heritageit.edu

Title of the Webinar:

Perspectives of Block Chain and Its Application in Healthcare Industry

Abstract of the Webinar:

Blockchain is a distributed transaction technology that is open but secure and public but at the same time private. It is based on a unique concept an “append only” open ledger. In this open ledger, every transaction that occurs within the network is added to this ledger once authenticated by the nodes in the network. It works on three major principles, such as (1) the transaction is open on the network, (2) the ledger distributed to ensure there is always a copy of the ledger, (3) every new transaction needs to be authenticated for their addition to the chain. Consensus algorithm is one of the algorithms that is implemented in Blockchain always. Blockchain has a wide range of applications and uses in healthcare. The ledger technology facilitates the secure transfer of patient medical records, manages the medicine supply chain and helps healthcare researchers unlock genetic code. Purpose of Blockchain can be well understand using consensus algorithm. Consensus algorithm in general is framed as a decision

making process where a group of people express their individual opinions to construct the decision which provides a best estimate of a process or system. Each member of the group expresses their opinion to support the decisions taken for a course of action. In simple terms, it is just a method to decide any event to occur within a group. Every one present in the group can suggest an idea, but the majority will be in favour of the one that helps them the most. Others have to deal with this decision whether they liked it or not. Byzantine Fault Tolerance (BFT), a problem of Byzantine General, is a system with a particular event of failure. Many times, there can be malfunctioning consensus systems. These components are responsible for the further conflicting information. Consensus systems can only work successfully if all the elements work in harmony. However, if even one of the components in this system malfunctions the whole system could break down. These Blockchain consensus models are just the way to reach an agreement. However, there can't be any decentralized system without common consensus algorithms. It won't even matter whether the nodes trust each other or not. They will have to go by certain principles and reach a collective agreement. In order to do that, it is required to check out all the Consensus algorithms. It can be stated that versatility of blockchain networks is due to consensus algorithms. However, blockchain consensus algorithm may have pros and cons which can always alter the perfection of the algorithm. The talk will explore Consensus Algorithm in detail and the perspectives of Blockchain technology in Healthcare Industry will be presented.

Keywords: Blockchain, Consensus Algorithm (CA), BFT, Open ledger, Peer-to-Peer network

Flyer for the Webinar



The flyer is a dark grey rectangle with a pink triangle in the bottom right corner. In the top left, there is a logo for '20 Celebrating 20 years' with a circular emblem. In the top right, the date and time are listed: 'Saturday, September 25th, 2021 11 am'. The main title is 'Perspectives of Block Chain and Its Application in Healthcare Industry' in pink, outlined text. Below the title is a portrait of Prof. (Dr.) Debabrata Datta, a man with glasses wearing a light green shirt. To the right of the portrait, his name and titles are listed: 'Prof. (Dr.) Debabrata Datta', 'Professor, Department of Information Technology Heritage Institute of Technology, Kolkata', and 'Former Nuclear Scientist & Head RP&AD Bhabha Atomic Research Centre Mumbai'. At the bottom, the joining link is provided: 'Joining Link: <https://meet.google.com/fsv-lqcl-obl>'. Below the link, it says 'Organized by: Department of Information Technology and Department of Computer Applications'.

List of Participants

Dr. Souvik Basu, Computer Applications

Dr. Siuli Roy, Information Technology Dept.

Prof. Debabrata Dutta, Information Technology Dept.

Prof. Sandip Chatterjee, Mathematics Dept.

hemanta de11:22 AM

Hemanta De, IT Department

62 DIVANKIT SHA11:22 AM

Divankit Sha MCA

Tiasha Majhee11:22 AM

Tiasha Majhee - MCA 2nd year.

14 rohit barua11:22 AM

Rohit Barua , MCA

sandipan ganguly11:22 AM

Sandipan Ganguly, Computer Applications

rituparna sinha11:22 AM

Rituparna Sinha, Information Technology

satarupa biswas11:22 AM

Satarupa Bagchi Biswas, Information Technology

Megha Pal11:22 AM

Megha Pal, Department- MCA 2nd year

Masuma Jasmine11:22 AM

Masuma Jasmine, MCA Dept

Krishanu Sarkar11:22 AM

Krishanu Sarkar, MCA

27 Arunima Sikdar11:22 AM

Arunima Sikdar,MCA

48 Sridip das11:22 AM

Sridip Das, MCA

15 avipriya pal11:22 AM

Avipriya Pal, MCA

23 TinaMajumder11:22 AM

Tina Majumder, MCA

04 Saurabh Shukla11:22 AM

Saurabh Shukla , MCA

49 Nitish Kumar11:22 AM
Nitish Kumar, MCA

35 riya samanta11:22 AM
Riya Samanta - MCA

Saurav KumarJha11:22 AM
Saurav Kumar jha MCA

Shalini Singh11:22 AM
Shalini Singh, MCA

56 chandrima panja11:22 AM
Name:- Chandrima Panja, Department:-MCA

46 Shreya Chamaria11:22 AM
Shreya Chamaria,MCA

51 Priyanka Das11:22 AM
Priyanka Das , MCA

Amrita Ghosh11:22 AM
Amrita Ghosh, MCA

sandipan dutta11:22 AM
Sandipan Dutta, IT

shantanu ghosh11:23 AM
Shantanu Ghosh, Information Technology

Arghyadeep Banerjee11:23 AM
Arghyadeep Banerjee , MCA

Rounak Manna11:23 AM
Rounak Manna, MCA

55 monideepa dasgupta11:23 AM
Monideepa Dasgupta, MCA Department
Saikat Biswas11:23 AM
Saikat Biswas , MCA

44 ANIMESH KUNDU11:23 AM
Animesh Kundu MCA

joydeb hazra11:23 AM
Joydev hazra, IT

42 Nandini Prasad11:23 AM

Nandini Prasad, MCA

63 Subhadeep Sur11:23 AM
Subhadeep Sur MCA

Arunava Dey11:23 AM
Arunava Dey, MCA

Prem Chand Jaiswal11:23 AM
Prem Chand Jaiswal, MCA 2nd year

16 Madhushree Mondal11:23 AM
Madhushree Mondal , MCA

19 Ankita Ray11:23 AM
Ankita Ray , MCA

22 Sounak Saha11:23 AM
Sounak Saha,MCA

deepmalya mukhopadhyay11:23 AM
Deep Malya Mukhopadhyay, IT

sudeshna ghosh11:23 AM
Sudeshna Goswami CSE

Vidisha Agarwal11:23 AM
Vidisha Agarwal, MCA, 2ND YEAR

anirban kundu11:24 AM
Anirban Kundu, Computer Applications

54 Souptik Dutta11:24 AM
054 Souptik Dutta, MCA 1st Year

05 Soumita chakraborty11:24 AM
Soumita Chakraborty, MCA, 2nd sem

07 soumili sau11:24 AM
Soumili sau, MCA, 2nd sem

18 Arunava Ghosh11:24 AM
Arunava Ghosh, MCA, 2nd sem

24 Soumyajyoti Middy11:25 AM
Soumyajyoti Middy,MCA 2nd semester

59 shankha tirtha ghosh11:25 AM
Shankha Tirtha Ghosh,mca 2nd sem

59 Sumit Vikram11:25 AM
Sumit vikram , IT

11 Ujjwal Gorai11:25 AM
Ujjwal Gorai Dept: MCA

01 sakshi gupta11:26 AM
Sakshi Gupta , MCA(2nd Sem)

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Rajkamal Gupta IT 2nd

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Promita Ghosh , MCA

47 SuryenduPan11:27 AM
Suryendu Pan, MCA

36 Rahul gour11:27 AM
Rahul Gour , MCA

37 Bhagyashree Maity11:28 AM
Bhagyashree Maity, MCA

Aritrika Banerjee11:29 AM
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10 debalina chakraborty11:29 AM
Debalina Chakraborty,MCA

Angadraj Singh11:33 AM
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Sudipta Bhadra,IT Dept

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Tina Majumder , MCA

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Sounak Saha -MCA 2nd sem

Agnishwar Mukherjee11:47 AM
Agnishwar Mukherjee, MCA

25 Debarpan BANDYOPADHYAY11:47 AM
Debarpan Bandyopadhyay, MCA 2nd Semester

B Tejaswari11:57 AM
B Tejaswari. , MCA

Dipanjan Patra11:59 AM
Dipanjan Patra, MCA

Sachin Agarwal11:59 AM
Sachin Agarwal- MCA

Kishor Mohanty12:00 PM
Kishor mohanty -MCA

Pratik Roy12:00 PM
Pratik Roy_MCA

13 Tiyasha Paul12:18 PM
Tiyasha Paul-MCA

40 Ayan Hossain 12:19 PM

Ayan Hossain -MCA

Somesh Das 12:20 PM

Somesh Das-MCA

Abhishek Kumar Soren 12:23 PM

Abhishek Kumar Soren-MCA

Snapshot of the Webinar

11:19 AM | Perspectives of Block Chain and Its Applicatio...

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Dr. Souvik Basu, Computer Applications

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Abhishek KumarSoren12:23 PM

Abhishek Kumar Soren-MCA

A handwritten signature in blue ink that reads "Souvik Basu". The signature is written in a cursive style and is placed on a light gray rectangular background.



**Heritage Institute of Technology
Department of Mathematics**

Report: Workshop on Mathematical Methods for Machine Learning (MMML-2021), organized by the Department of Mathematics, Heritage Institute of Technology, in association with ORSI, Kolkata Chapter, in online mode (Google meet), on September 20-24, 2021.

The Department of Mathematics, Heritage Institute of Technology, in association with ORSI, Kolkata Chapter, organized a 5-day workshop on Mathematical Methods for Machine Learning (MMML-2021) on September 20-24, 2021 in online mode (Google meet), in which the mathematical concepts that are at the foundations of the techniques and algorithms used in machine learning were discussed. The number of participants in the workshop was 40, which was kept low in order to facilitate effective interaction during the workshop. The backgrounds and levels of participants were heterogeneous where the levels are ranging from 1st year students to Assistant Professors in various universities to research scholars even in foreign universities and the background varies among Mathematics, Physics, Chemistry, Civil Engineering, Computer Science, Electronics Engineering and Pharmaceutical Engineering.

The inaugural session, held on September 20, 2021, was graced by the presence of Prof. Basab Choudhuri, Principal, HITK, Prof. R. N. Mukherjee, Prof. Debabrata Datta and Prof. Subhashis Majumder. They addressed the gathering and thereby set the stage for the proceedings of the workshop.

The four distinguished speakers of the workshop were:

- (i) Prof. Samarjit Kar, Professor, Department of Mathematics, NIT Durgapur and Secretary, ORSI, Kolkata Chapter.
- (ii) Dr. Sandip Chatterjee, Associate Professor and Head, Department of Mathematics, Heritage Institute of Technology, Kolkata.
- (iii) Dr. Dipankar Chakraborty, Assistant Professor and DC, Department of Mathematics, Heritage Institute of Technology, Kolkata.
- (iv) Dr. Sk. Arif Ahmed, Assistant Professor in the School of Computer Science and Engineering, XIM University, Bhubaneswar.

Dr. Souvik Ghosh compered the proceedings of the workshop.

On September 20, 2021, after the inaugural session, Prof. Samarjit Kar delivered a lecture entitled '*A Basic Introduction to Machine Learning and Data Science*', in which the fundamentals of the subject were discussed. In the second session, Dr. Sandip Chatterjee delivered a lecture entitled '*Basics of Linear Algebra: Matrix Transformations, Eigenvectors,*

Diagonalisation, Orthogonalisation and Gram-Schmidt Process', in which the algebraic background of the subject was discussed in detail.

The probabilistic features of the subject were discussed by **Dr. Dipankar Chakraborty** in a talk entitled '*Review of Probability Theory and Random Variables*', in the first session on September 21, 2021. In the second session, **Dr. Sandip Chatterjee** continued the discussion of algebra in his lecture entitled '*Matrix Factorisation: QR factorisation, Solving Linear Least-square Problems using QR factorisation and Singular Value Decomposition(SVD)*'.

In the first session of September 22, 2021, **Dr. Dipankar Chakraborty** continued the discussion of probability in a lecture whose title was '*Joint Probability Distribution and Regression*'. The title of **Prof. Samarjit Kar's** talk in the second session was '*Optimization Methods for Machine Learning and Data Science*'.

On September 23, 2021, **Dr. Sk. Arif Ahmed** delivered a lecture entitled '*Machine Learning and Deep Learning using Python*' in the first session, and **Dr. Dipankar Chakraborty** discussed the statistical aspects of the subject in the talk '*Regression Analysis*' in the second session.

On September 24, 2021, **Dr. Sk. Arif Ahmed** delivered the second part of his lecture on '*Machine learning and deep learning using Python*'. The title of the lecture delivered by **Dr. Sandip Chatterjee** in the second and final session was '*Convexity and the Gradient Descent Algorithm*'. At the conclusion **Dr. Sandip Chatterjee** gave the vote of thanks, thus bringing the workshop to an end.


(Dr. Sandip Chatterjee) 6/14/10/21

HOD, Mathematics

Department of Mathematics
Heritage Institute of Technology

(MMML-2021) Participant List

Name	Current affiliation	Designation (If student, mention Year/	Expectation from the workshop	Contact number
Praneel Bhattacharya	Heritage Institute of Technology	Student, 1st Year 2nd Semester	To learn some new concepts of the Mathematics behind Machine Learning	7439946182
Tanisha Saha	Shri Shikshayatan College (Calcutta Univer	Student (2nd year, 3rd semester)	To get more interested in mathematics	9830749690
AVIK RAY	MAKAUT	Student (4th Year / 7th Semester)	Understanding various mathematical methods for machine learning.	6290767710
SWAPNIL DEY	MAKAUT	Student (4th Year / 7th Semester)	Understanding various mathematical methods for machine learning	7908366362
Dipika Patra	West Bengal State University	Research scholar	In details machine learning using R programming	8981581849
Atandra Bharati	HITK	1st yr/ 2nd sem	Expecting to learn mathematics to strengthen foundation to machine learning	8768203080
Prithwish Das	Heritage institute of technology kolkata	4th semester	To get familiar with mathematical aspects in machine learning	9330988913
Ananya Priya	Btech student	1 year, 2nd semester	I will get better knowledge about Statistics, Linear Algebra, Probability, and Calcul	7992355993
Koushani datta	B tech	1st year , second semester	A full fledged knowledge of mathematical methods which is required for machine le	93308 66597
Dr. Shubhankar Saha	Sir Gurudas Mahavidyalaya, Kolkata-70006	Faculty, Department of Mathematics	Expecting some interesting lectures on the said topics in Mathematical aspect	8100318383
Agnish Ghosh	Heritage Institute of Technology, Kolkata (Af	1st Year, 2nd Semester.	An extensive knowledge about the mathematical methods used for Machine Learn	+91 9007354697
Somnath Mondal	Jadavpur University	Reserch Scholar	Applications related	8013963374
Amit yadav	Hit	1st year 2nd semester	Experience	8382993281
Mousam Maity	Presidency University	Student, Graduated in 2021 (UG)	Will be able to learn a new thing.	9836800954
Sourav Patra	JIS University	Student 4th year/7th sem	Want to earn knowledge from the workshop about mathematics	9679975743
ABDUL MATIN	B.Sc Honourse	3rd sem	Mathematics learning	9593550346
Shreyasi Chowdhury	Engineering	Student	Hope we will be able to know something about machine learning.	07605870712
Shubham Kumar	Btech student	1 year,2nd semester	I will get better knowledge about Statistics, Linear Algebra, Probability, and Calcul	7479973711
Suchita Gora	Student	1st/2nd	Wish to learn and develop new mathematical techniques in machine learning.	8274960603
Sudipta Roy	The Heritage Academy	Assistant Professor	ML development process in reality	9330485776
Jumasri Ganguly	Heritage Institute of Technology [1]	Student	To learn about machine learning	+919330654099
Rituparna Padira	Student at Heritage Institute of Technology	2nd year/ 4th semester	To learn more about the mathematics involved in machine learning	8102048324
Proteen Kr Das	Heritage Institute of Technology Kolkata	Student 1st Year 2nd Semester	Learning about the different mathematical methods applied in ML	9874391502
Madhubrata Bhattacha	The Heritage College	Assistant Professor	Betterment in Teaching	9830322461
Fardeen Hossain Khar	Student	1st year	To gain Knowledge .	7557841677
Sumangal Sarkar	student	1year	to gain knowledge	7439811648
Arghadip Roy	The Heritage College	Assistant Professor	Want to gain knowledge in Machine learning.	8145378991
DEBORSI BASU	Indian Institute of Technology, Kharagpur, In	Research Scholar	Expecting the fundamental clarity and understandings of ML/AI techniques in the	7278027362
SUMITA BANERJEE	JADAVPUR UNIVERSITY	Post- Doctoral Research Scholar	I want to learn new methods of computer programming and upgrade myself.	7980363893
Ashesh Paul	Department of Mathematics, Techno India U	Assistant Professor	Enhance knowledge in machine learning	8961001047
Nidhi Dubey	Heritage Institute of Technology	2nd year student	It will help me to learn the mathematics required for learning ML	7488639980
Chitrita Banerjee	Student of Chemical Engineering 1st Year in	2nd Semester	To learn new technologies and enrich my knowledge	9836222250
Tamalisha Sen	Student	1st year, 2nd semester	To have a detailed knowledge on machine learning	9800309226
Somjit Datta	Department of Mathematics, Heritage Instit	Assistant Professor	An Introduction to Machine Learning	090077 59621
Moumita Pramanik	Faculty in the Dept of Mathematics, HIT, Kol	Assistant Professor	To have in depth analysis of machine learning process using different dynamic m	9051233618
Jyotirmoy Ghosh	Heritage Institute of Technology	Associate Professor	Want to learn underline mathematics of ML algorithms	9434402740

Name	Current affiliation	Designation (If student, mention Year/	Expectation from the workshop	Contact number
Arijit Dey	FAU Erlangen-Nürnberg	Student, 4th Semester	Learn mathematical models to implement Deep Learning in Signal Processing pro	(+91) 727826015
Sudeshna Goswami	Heritage Institute of Technology, Kolkata	Asst. Professor	To learn mathematics behind machine learning	9831282440
Manish agarwal	Student	3rd	To be able to learn and understand the details behind machine learning algorithms	6205667725
Neha Rajgaria	Student	4th year	To learn about the stats related to ML	8910291453

Sandip Chatterjee
14/10/2021

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Speaker: Prof. Sushmita Mitra

Topic: From Learning To Deep Learning

Attendees: 36

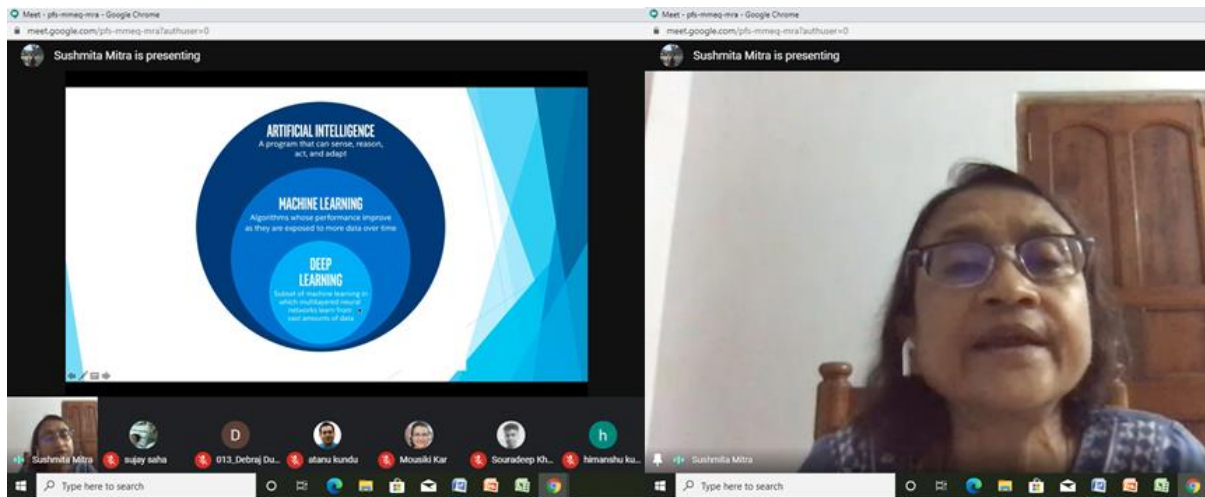
Venue: Online


Organizing Institute: IEEE ED HITK SBC, Heritage Institute of Technology

The Department of Electronics & Communication Engineering, Heritage Institute of Technology in collaboration with IEEE Electron Devices HIT Student Branch Chapter, IEEE EDS Center of Excellence and IEEE EDS Kolkata Chapter organized a Lecture Program (Webinar) on October 10, 2020.

It was an honour to have Prof. Sushmita Mitra, Fellow IEEE and INAE Chair Professor and Fulbright-Nehru Senior Researcher, Machine Intelligence Unit (MIU), Indian Statistical Institute, Kolkata. She delivered a lecture on the topic 'From Learning To Deep Learning'.

The lecture was held on the GOOGLE MEET platform at 6 p.m. on Saturday, October 10, 2020.




HOD, ECE Department
Heritage Institute of Technology
Kolkata

The IEEE EDS Center of Excellence at Heritage Institute of Technology, believes in 'Education for Empowerment'. The May to July quarter was dedicated to 'The joy of learning' by bringing together academicians, researcher scholars, industry personnel, undergraduate and post graduate students from more than 38 organizations across India. A series of stimulating Distinguished Lectures were organized by the Center of Excellence. Distinguished speakers from across the globe made this webinar series extremely successful.

We started the series with a Distinguished Lecture by Prof. Subramanian S. Iyer, Distinguished Professor and Charles P. Reames Endowed Chair in the Electrical Engineering Department at the University of California at Los Angeles. He delivered a talk on 'Flexible Hybrid Electronics 2.0' on April 17, Saturday, 7.30 pm (IST).

UCLA

Flexible Hybrid Electronics 2.0

Subramanian S. Iyer
s.s.iyer@ucla.edu

Center for Heterogeneous Integration and Performance Scaling
chips.ucla.edu

University of California, Los Angeles, CA 90095

UCLA Samueli School of Engineering | IEEE Distinguished lecture Lecture April 17th 2021. | **CHIPS** CENTER FOR HETEROGENEOUS INTEGRATION AND PERFORMANCE SCALING

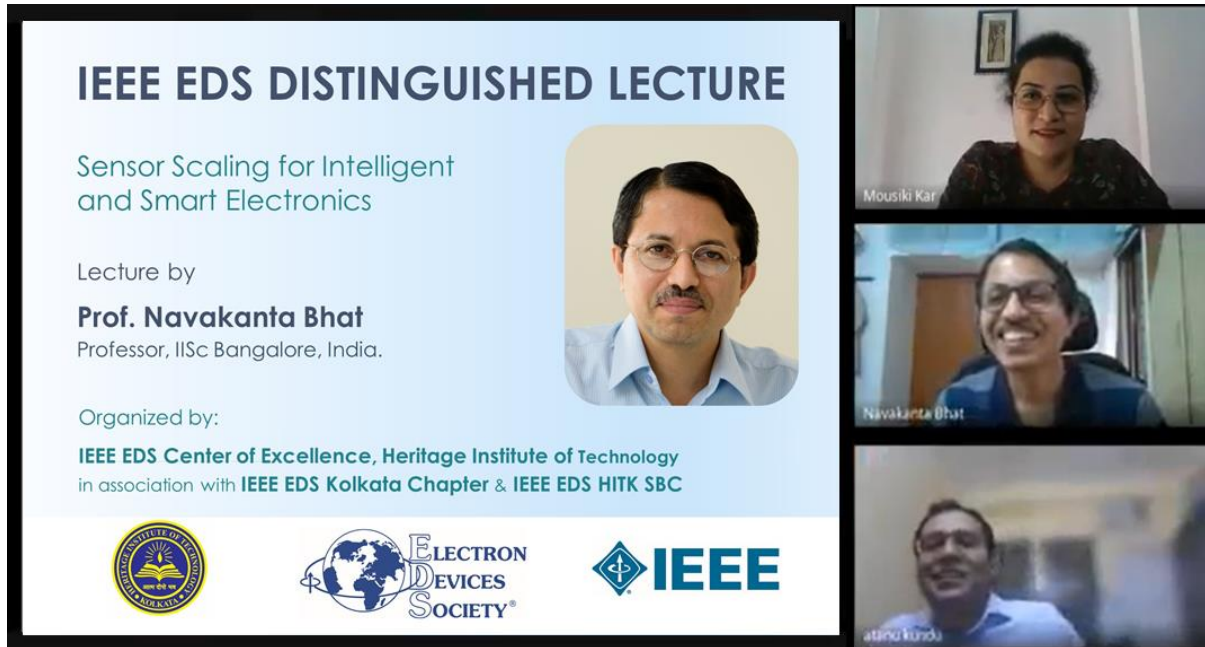
Participants: You, atanu kundu, Subramanian Iyer

DL Prof. Subramanian S. Iyer, being greeted by Dr. Atanu Kundu, Chapter Advisor ED HITK SBC and Dr. Mousiki Kar, Co-ordinator IEEE EDS CoE, HITK and Chair, EDS Kolkata Chapter

He spoke about the significant impact that Flexible Hybrid Electronics (FHE) is making in the area of medical and wellness electronics. 89 enthusiastic participants took part actively in the lecture session. The event was organized in association with, ED Heritage Institute of Technology Student Branch Chapter and IEEE Kolkata Section.

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Our next speaker was Prof. Navakanta Bhat, Professor, Indian Institute of Science, Bangalore and Chairperson, Centre for Nano Science and Engineering, IISc on April 20, Tuesday at 3.00 pm (IST).






IEEE EDS DISTINGUISHED LECTURE

Sensor Scaling for Intelligent and Smart Electronics

Lecture by
Prof. Navakanta Bhat
Professor, IISc Bangalore, India.

Organized by:
IEEE EDS Center of Excellence, Heritage Institute of Technology
in association with **IEEE EDS Kolkata Chapter & IEEE EDS HITK SBC**

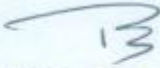
Mousiki Kar

Navakanta Bhat

Atanu Kundu

DL Prof. Navakanta Bhat, being greeted by Dr. Atanu Kundu, Chapter Advisor ED HITK SBC and Dr. Mousiki Kar, Co-ordinator IEEE EDS CoE, HITK and Chair, EDS Kolkata Chapter

He spoke on the topic 'Sensor Scaling for Intelligent and Smart Electronics'. Prof. Bhat discussed a holistic approach to manage the diversity and scaling issues of sensor blocks, akin to what was done in digital, analog and mixed signal electronics. The possibility of constructing an Electronic Nose on a Chip, with massively parallel sensor array architecture, compute and storage engines, possibly realized using heterogenous technologies was highlighted. The opportunities of integrating a variety of nanomaterials on Silicon platform, such as core-shell nanostructure, 2D materials and their hybrids were also discussed. The session was attended and enjoyed by 50 participants. The event was organized in association with, IEEE EDS Kolkata Chapter and ED Heritage Institute of Technology Student Branch Chapter.



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Kolkata



pujabasu chaudhury <pujabasu.chaudhury@heritageit.edu>

Webinar by Civil Engineering Department, on 25th November, 2020

1 message

tapas sadhu <tapas.sadhu@heritageit.edu>
Reply-To: tapas.sadhu@heritageit.edu
To: notice circulation <notice@heritageit.edu>

Mon, Nov 23, 2020 at 6:19 PM

Dear All,

It is a pleasure to inform you that the department of Civil Engineering is organising a webinar on **'Water Treatment: An Overview'** in association with School Of Water Resource Engineering, **Jadavpur University**.

You are cordially invited to attend this webinar.

Our guest speaker at this session is **Dr. Asis Mazumder, Director, School of Water Resources Engineering**, will be sharing his knowledge on various aspects of water treatment.

**Date: 25-11-2020****Time: From 2pm****Registration Link-**

<https://docs.google.com/forms/d/e/1FAIpQLSczo8pHCXv2LgJiLaUXk03v4XrEL5WRoh8e2zZnfdtwpacUsA/viewform?vc=0&c=0&w=1&flr=0>

The webinar will be held on the **Google Meet** platform.
The speaker's biography is attached herewith.

Thanks and regards

Prof. (Dr.) Tapas Sadhu,
Prof. & Head,
Department of Civil Engineering, HIT-K

2 attachments

Poster.jpg
68K



Prof Asis Mazumder (4).docx
40K

The Department of Electronics & Communication Engineering, Heritage Institute of Technology in collaboration with IEEE Electron Devices HIT Student Branch Chapter, IEEE EDS Center of Excellence and IEEE EDS Kolkata Chapter organized a Distinguished Lecture Program (Webinar) on **August 09, 2020**.

It was our proud privilege to have **Prof. Samar Saha**, 2016-2017 President of IEEE Electron Devices Society (EDS) and currently, serving as the Sr. past President of the Society. as the speaker. Prof. Samar Saha, is an **IEEE EDS Distinguished Lecturer**, Chief Scientist at Prospicient Devices and an Adjunct Professor in the Electrical Engineering (EE) department, Santa Clara University, USA. He delivered a lecture on '**Physics of Microelectronic Device Models for VLSI Circuit Design**'.

The lecture was held on the GOOGLE MEET platform and was attended by **92 participants from 29 Institutions** from across the world.

The screenshot shows a Google Meet interface. At the top, it says 'Mousiki Kar is presenting'. The main content is a PowerPoint slide titled 'Device Model Formulation: Basic Steps'. The slide contains the following text:

- Core model for $I-V$ and $C-V$ characteristics:
 - Long channel device;
 - No geometry effects;
 - No physical effects.
- Include models for real device effects:
 - Geometry dependence – short and narrow channel;
 - Physical phenomena.
- Add models for real external effects on transistor.

Below the text is a circular diagram illustrating the 'Core Model' and its various effects. The diagram shows a central 'Core Model' with 'I-V' and 'C-V' characteristics. Surrounding it are various effects: 'Active and Passive Parasitic Elements', 'Non-Quasi-static Effects', 'Substrate R-C Network', 'Self-heating', 'Temperature Effects', 'Leakage Currents', 'RF Effects', 'Layout Effects', 'Process Variability', 'Resistances', 'Series', 'Physical Effects', 'Geometry Effects', 'High-Field Effects', and 'Structural Effects'. The diagram also mentions 'Layer Thickness' and 'Layer Thickness'.

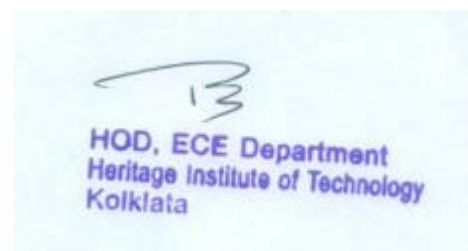
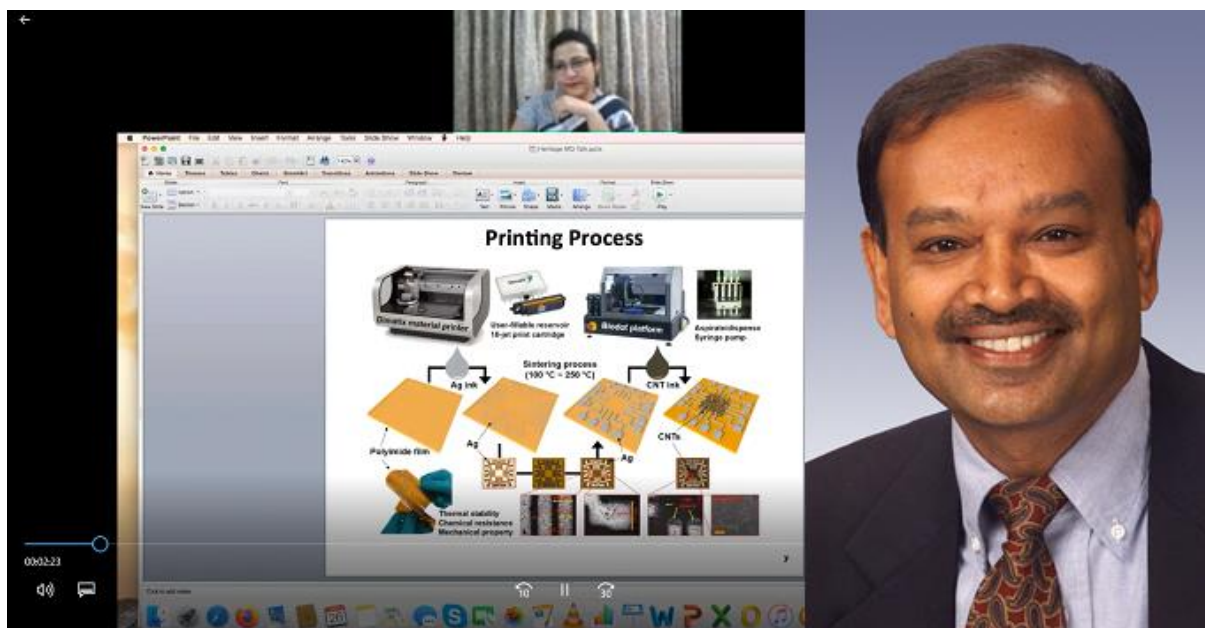
At the bottom of the slide, it says 'IEEE EDS DL: ED HITK STUDENT BRANCH - AUG 9, 2020'. The Meet interface also shows a grid of participants, including Samar Saha, Mousiki Kar, atanu kundu, Sudeepo Sen, Feel Harmonique, Subhoprityo Sadhukh..., Anandan Biswas, and 072_Ishita Mullick. There are also icons for meeting controls like mute, video, and chat.

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The Department of Electronics & Communication Engineering, Heritage Institute of Technology in collaboration with IEEE Electron Devices HIT Student Branch Chapter, IEEE EDS Center of Excellence and IEEE EDS Kolkata Chapter organized a Distinguished Lecture Program (Webinar) on **July 26, 2020**.

We had **Dr. Meyya Meyyappan, Chief Scientist, NASA Ames Research Center**, as our speaker. Dr. Meyyappan is an **IEEE EDS Distinguished Lecturer** and **President of IEEE EDS**. He delivered a lecture on **'Printed and Flexible Electronics'**.

The lecture was held on the WEBEX platform and was attended by **88 participants from 24 Institutions** from across the globe.



Following this a lecture was delivered by Prof. Prasanta Kumar Basu, Ex-Professor, Institute of Radio Physics and Electronics, University of Calcutta on June 05, 2021 at 7 p.m. IST. The topic of the webinar was ‘Network-on-Chip: A Journey from Electronic to Electronic-Photonic to Future Plasmonic Systems’.

Generation of Surface Plasma Waves

a

b

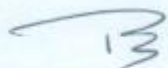
B Surface plasmon polaritons (SPP)

- Wave → particle
- EM Wave → photons
- Lattice vibration wave → phonon
- Surface Plasma Waves → Surface Plasmon
- Surface Plasmon + Photon → Surface Plasmon Polariton

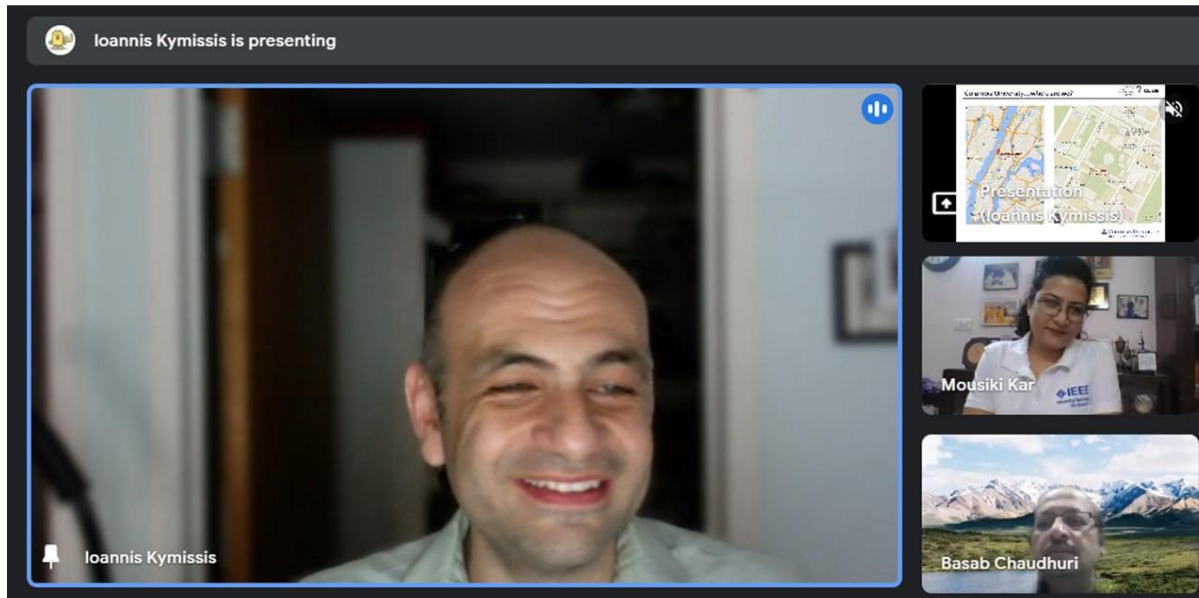
5/06/2021 NoC-IEEE-EDS-Kolkata

Prof. Prasanta Kumar Basu delivering his lecture

Prof. Prasanta Kumar Basu, discussed how plasmonics, in particular surface plasmonics, allow realization of sub wavelength sized devices and therefore seems to be the ultimate solutions for network-on-chip (NOC). The very small propagation length of plasmonic waves can be overcome by Surface Plasmon Amplification by Stimulated Emission of Radiation (SPASER) replacing nanolasers used in communication and networking. The talk was attended by 97 participants.


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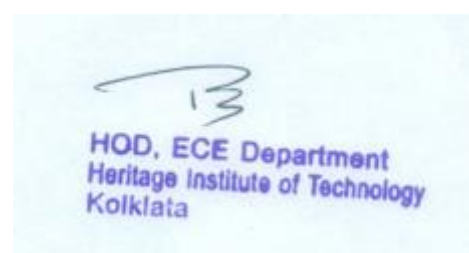
The Month of June was graced by a Distinguished lecture by Prof. Ioannis (John) Kymissis, Professor of Electrical Engineering in the Department of Electrical Engineering at Columbia University, New York, USA. He spoke on the topic 'Electronics on Anything: How Thin Film Electronics can Instrument the World' on June 19, 2021 at 7 p.m. IST.



DL Prof. Ioannis (John) Kymissis delivering his lecture

In his lecture Prof. Kymissis discussed how his group has been working on the hybrid integration of organic semiconductors, thin film piezoelectrics, and laser-recrystallized materials with active substrates to implement a range of new functionalities. Devices they have developed include large area and miniature microphones, pressure sensors, active matrix flexible electrostrictive actuators, miniature spectrometers, and active matrix micro-LED displays. These approaches unlock new applications in healthcare, sensing, displays, soft and highly instrumented robotics, transportation, and communications.

The lecture was enjoyed by 50 attendees. The event was organized in association with IEEE EDS Kolkata Chapter.

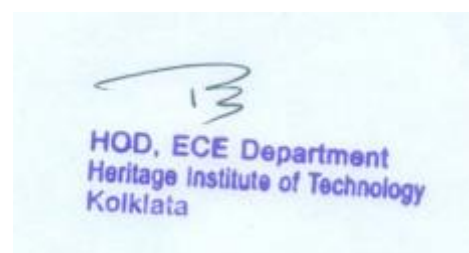


The month of May started off with a lecture delivered by Prof. Kaushik Roy from Purdue University on May 01, Saturday, 7.30 pm (IST). He spoke on the topic, ‘Re-Thinking Computing with Neuro-Inspired Learning: Devices, Circuits, and Systems’.

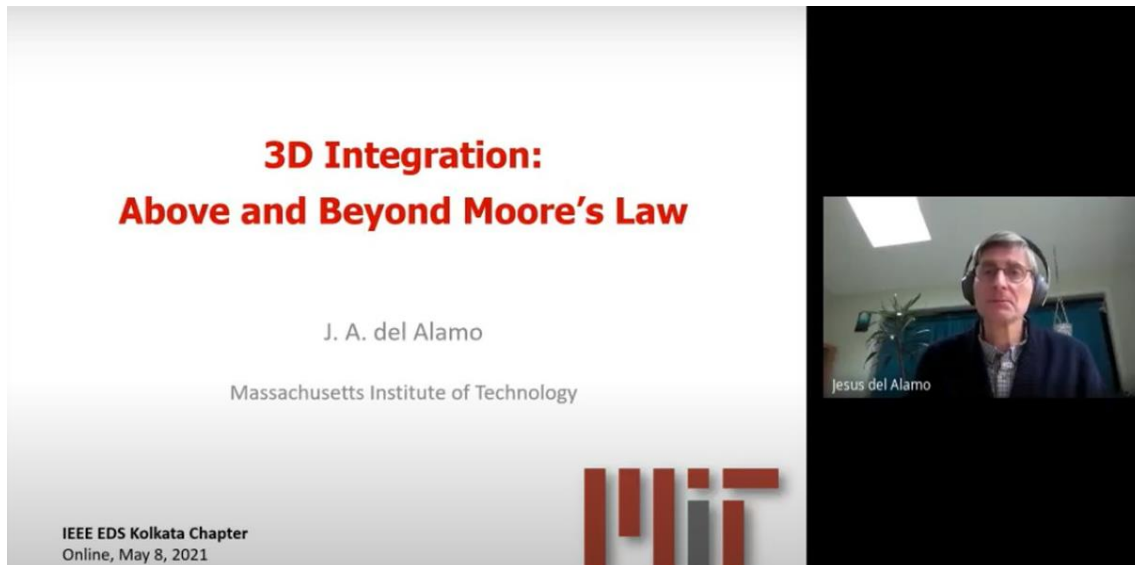


DL Prof. Kaushik Roy, being greeted by Dr. Susmita Mitra, Chair, Kolkata Section, Dr. Atanu Kundu, Chapter Advisor ED HITK SBC and Dr. Mousiki Kar, Co-ordinator IEEE EDS CoE, HITK and Chair, EDS Kolkata Chapter

He described his recent work on neuromorphic computing with spike based learning and the design of underlying hardware that can lead to quantum improvements in energy efficiency with good accuracy. The lecture was attended by 95 participants. The event was organized in association with, ED Heritage Institute of Technology Student Branch Chapter and IEEE Kolkata Section.



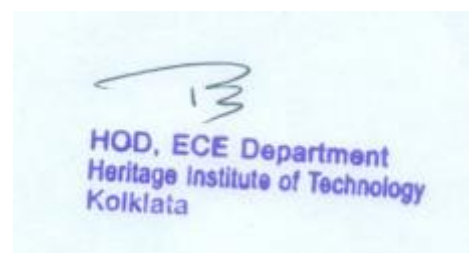
The second lecture in the month of May was delivered by Prof. Jesús A. del Alamo, Professor at Massachusetts Institute of Technology (MIT) and Director of the Microsystems Technology Laboratories. Prof. Alamo, spoke on the topic '3D Integration: Above and Beyond Moore's Law' on May 08, 2021, Saturday, at 7 p.m. IST.



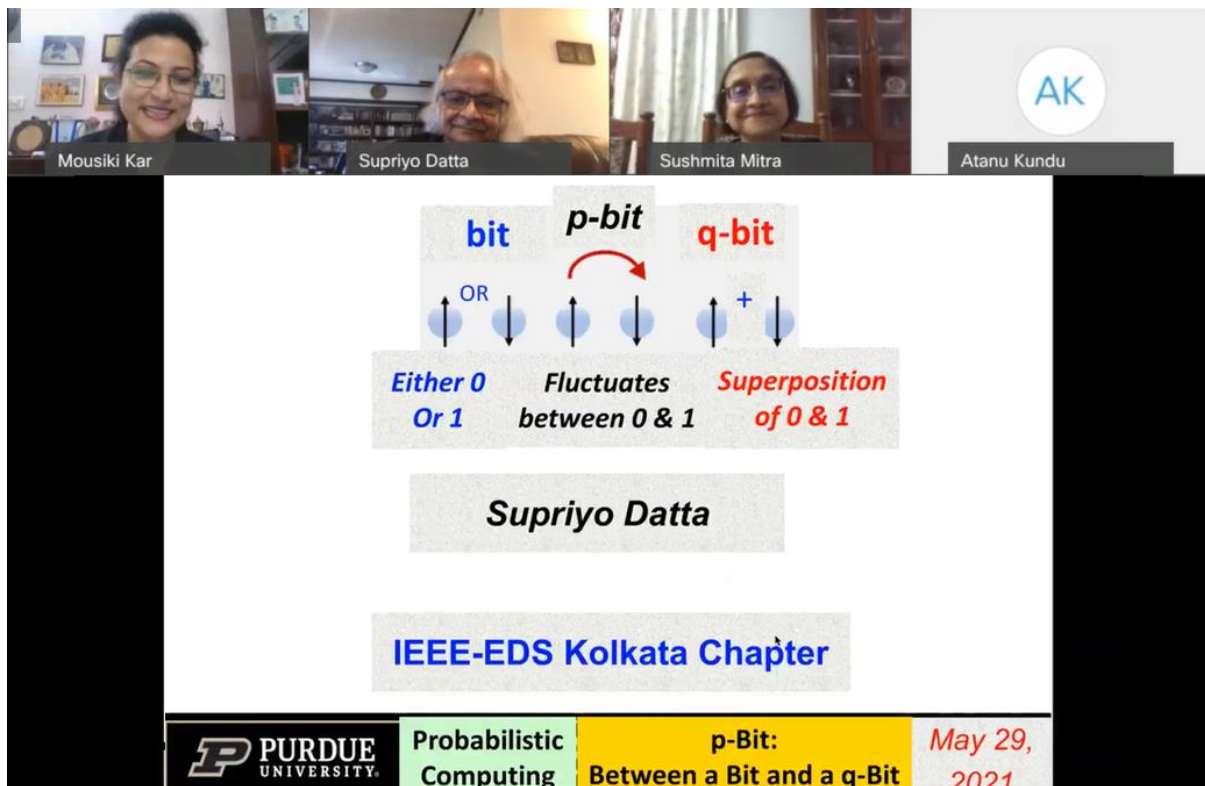
DL Prof. Jesús A. del Alamo delivering his lecture

Three-dimensional (3D) integration which is an emerging technology that can form highly integrated systems by vertically stacking and connecting various materials, technologies and functional components together was discussed. The potential benefits of 3D integration can vary depending on approach; they include multifunctionality, increased performance, reduced power, small form factor, reduced packaging, increased yield and reliability, flexible heterogeneous integration and reduced overall costs.

80 attendees from across the country enjoyed his lucid and informative presentation. The event was organized in association with, IEEE EDS Kolkata Chapter.



We wound up the month of May with a Distinguished lecture delivered by Prof. Supriyo Datta from Purdue University on the topic ‘Computing with p-Bits: Between a Bit and a q-Bit’ on May 29, Saturday, 7.30 pm (IST).



DL Prof. Supriyo Datta, being greeted by Dr. Susmita Mitra, Chair, Kolkata Section and Dr. Mousiki Kar, Co-ordinator IEEE EDS CoE, HITK and Chair, EDS Kolkata Chapter

He discussed that the awesome power of quantum computing comes from exploiting negative probabilities, which in turn requires stringent experimental conditions to protect the phase. Prof. Supriyo Datta explained that a probabilistic computer by contrast can be built with existing technology to operate at room temperature and has been demonstrated experimentally.

179 participants attended the talk which was organized in association with IEEE Kolkata Section, IEEE EDS Kolkata Chapter and ED Heritage Institute of Technology Student Branch Chapter.

