NEWSLETTER

सरदार वल्लभभाई राष्ट्रीय प्रौद्योगिकी संस्थान,सूरत

Sardar Vallabhbhai National Institute of Technology, Surat

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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ABOUT DEPARTMENT

The Department of Computer Science and Engineering offers B. Tech., M. Tech., M. Tech. (R) and Ph.D. Programs. The department also offers B. Tech. Minor in Computer Science and Engineering for other discipline students.

The department has various specializations like information security, data mining, artificial intelligence, machine learning, deep learning, natural language processing, social network analysis, cloud computing, privacy preserving, cyber security, image processing, computer vision, software engineering. The department has executed several research projects sponsored by different funding agencies. The department has state of art computing desktop PCs, blade servers and super nodes for high performance computing. The department also has aerial drones, wireless network simulator software and sensor motes. The department has also signed MoU with different industries. The alumni of the department are now serving in various industries and few of them are entrepreneurs.

VISION

The vision of Department of Computer Science and Engineering is to recognize itself as globally renowned learning center in the field of Computer Science & Engineering and foster the research and innovations for the global good.

MISSION

The mission of Department of Computer Science and Engineering is to:

- Impart education that encourages students to read critically, reason analytically, communicate persuasively, apply professionally and prepare them to excel in the field of computing.
- Imbibe strong-willed attitude in the students, research scholars and its own community to use their knowledge and skill-sets for the improvement of the society, country, and global community.
- Provide education based on ethical values resulting in knowledge and skills valued by industry and society.
- Impart training and create an environment that enables students and faculty members alike to engage in lifelong learning and pursuit of knowledge.

MESSAGE FROM HEAD OF THE DEPARTMENT

Welcome to the Department of Computer Science and Engineering, SVNIT Surat. I feel honored to work with truly inspirational leadership and the team of highly dedicated faculty members, staff and students.

With increase in faculty strength this year, the department is committed to impart wide range of diverse learning experiences to students and research scholars. The department is enriching its research facility every year by promoting new research domains like digital forensics, Natural Language Processing, Cognitive Learning etc. Recently, High Performance Computing (HPC) facility is procured which will be instrumental in catering need of computing resources for wide range of machine learning and deep learning applications across the Institute.

We proudly mention that our UG program B. Tech. in Computer Science and Engineering is accredited by National Board of Accreditation (NBA) for three years with great support of highly dedicated faculty members, students, parents and alumni. We thank all stakeholders involved in the accreditation process.

Like every year, the department is proud to have a good placement record for the academic year 2024-25 having most of the students placed in reputed IT companies like Microsoft, Atlassian, Amazon, Google, Cisco, Visa etc.; while remaining are pursuing higher studies at renowned institutions in India and abroad.

As we approach towards new academic year, I wish all the students and faculty members a fruitful academic year 2025-26.

I invite all readers to visit our website for more details and future collaborations.

With best wishes,

Sankita Patel
Associate Professor and Head,
Department of Computer Science and Engineering, SVNIT, Surat
Email: hod@coed.svnit.ac.in

NEWLY JOINED FACULTY MEMBERS

Dr. Anirban Bhattacharjee

Assistant Professor, Ph. D.

Research Area: Design and Optimization of Quantum Circuits, Testing of Reversible Circuits, Quantum Machine Learning

Dr. Sourajit Behera

Assistant Professor, Ph.D.

Research Area: Predictive Maintenance, Prognostics and Health Management, Industry 4.0, Artificial Intelligence of Things, Deep Learning

Dr. Siba Sankar Sahu

Assistant Professor, Ph.D.

Research Area: Natural language processing, Information Retrieval, Machine learning and deep learning and application to information retrieval

Dr. Shrikant Malviya

Assistant Professor, Ph.D.

Research Area: Natural Language Processing, Misinformation Detection, Applications on Indic Languages

STUDENTS ACHIVEMENTS

We are proud to share that under the guidance of **Dr. Chandra Prakash, Ms. Saakshi Padamwar**(P24DS028), researchers from Sardar Vallabhbhai National Institute of Technology (SVNIT), has been honored with the Best Paper Award at the prestigious 4th OPJU International Technology Conference (OTCON 4.0) held from April 9–11, 2025, at O.P. Jindal University, Raigarh, Chhattisgarh.

Their award-winning paper, titled "**Colorblind-Friendly Image Recolouring Using Generative Adversarial Networks**" addresses accessibility in digital imaging by leveraging AI to improve visual experiences for individuals with color vision deficiency.

STUDENTS ACHIVEMENTS

Vatsal Maheshkumar Prajapati (P24DS004), who successfully presented his research at the 2025 4th OPJU International Technology Conference (OTCON 4.0), held from April 9–11, 2025, at O.P. Jindal University, Raigarh, Chhattisgarh. His paper, titled "Palmistry Feature Analysis Using Computer Vision Techniques: A Step Towards Intelligent Palmistry," aims to develop an approach that can accurately identify and analyze palmistry characteristics, allowing more objective and reproducible assessments of hand characteristics.

DEPARTMENTAL ACHIVEMENTS

दैनिक भास्कर सूरत 26-06-2025

सिटी एंकर

SVNIT के रिसर्चर्स को मिला स्मार्ट फिजियोथेरेपी इनोवेशन का पेटेंट

स्मार्ट मिरर बताएगा कि कब और कैसे करनी है फिजियोथेरेपी, 3 साल में 100 से ज्यादा लोगों पर रिसर्च कर बनाया, पेटेंट मिला

एजुकेशन रिपोर्टर | सूरत

सरदार वल्लभभाई नेशनल इंस्टीट्यूट ऑफ टेक्नोलॉजी (SVNIT) और IGDTUW दिल्ली के शोधकर्ताओं ने मिलकर ऐसा मिरर तैयार किया है, जो मरीज को बता देगा कि फिजियोथेरेपी कब करानी है। AI बेस्ड यह स्मार्ट मिरर मरीज के शरीर की गतिविधियों को देखकर काम करता है। स्मार्ट हेल्थकेयर इनोवेशन के क्षेत्र में एक बड़ी उपलब्धि हासिल करते हुए, SVNIT सूरत और IGDTUW के शोधकर्ताओं की टीम को स्मार्ट फिजियोथेरेपी के लिए इसी जून में पेटेंट मिला है। इसका टाइटल 'सिस्टम एंड मेथड फॉर आईडेंटीफाइंग एंड क्लस्टरिंग ह्यूमन ज्वॉइंट्स फॉर स्मार्ट फिजियोथेरेपी है।'

ऐसे काम करता है ये स्मार्ट मिरर

- स्मार्ट मिरर में एक कैमरा लगा होता है, जो मरीज के शरीर की गतिविधियों को ट्रैक करता है। खासतौर से हाथ, पैर, गर्दन, पीठ जैसे जोड़।
- फिर AI एल्गोरिदम उनकी स्थिति का विश्लेषण करता है कि कौन-सी मूवमेंट सही है, कौन-सी नहीं।
- मिरर मरीज को रीयल टाइम में सही एक्सरसाइज करने के निर्देश देता है।
- सबसे खास बात है कि इसमें न सेंसर, न मार्कर, न वायर बस कैमरा और आईना है।

स्मार्ट मिरर से फिजियोथेरेपी सुविधाजनक और सस्ती होगी

स्मार्ट मिरर मानव शरीर की गति को चिन्हों के बिना, सस्ती और प्रभावी तरीके से समझने का एक नया रास्ता खोलता है। फिजियोथेरेपी आमतौर पर मैन्युअल जांच और इलाज पर निर्भर करती है। स्मार्ट मिरर डिवाइस में मरीज की गतिविधियों को ट्रैक कर, रियल टाइम में उनकी मुद्राओं का विश्लेषण कर सकते हैं।

PATENT GRANTED (PATENT NUMBER 565954, 05/05/2025)

INVENTORS:

- D SETHI
- CHANDRAPRAKASH
- A.K MOHAPATRA,
- A DEV

SYSTEM AND METHOD FOR IDENTIFYING AND CLUSTERING HUMAN JOINTS FOR SMART PHYSIOTHERAPY

Researchers from **SVNIT Surat** and **IGDTUW Delhi** have developed an **AI-based Smart Mirror** that guides users on *when and how to perform physiotherapy*. After 3 years of research on over 100 individuals, the innovation received a patent in June 2025.

The mirror uses a camera and AI algorithm to track body movements (like arms, legs, neck, and back) and provides real-time feedback—without the need for sensors, markers, or wires.

SVNIT અને IGDTUW દ્વારા સ્માર્ટ મિરર બનાવાયું

AI આધારિત સ્માર્ટ મિરરથી હવે ઘરબેઠા ફિઝિયોથેરાપી લઈ શકાશે

પ્રોજેક્ટને જૂન ૨૦૨૫માં સ્માર્ટ ફિઝિયોથેરાપી માટે પેટન્ટ પણ મળી ચૂકી છે

| સુરત |

સરદાર વલ્લભભાઈ પટેલ નેશનલ ઈન્સ્ટિટ્યુટ ઓફ ટેકનોલોજી અને IGDTUW દિલ્હીના સંશોધકોએ ભેગા મળીને સ્માર્ટ મિરર બનાવ્યું છે. જેને જૂન ૨૦૨૫માં સ્માર્ટ ફિઝિયોથેરાપી માટે પેટન્ટ પણ મળી ચુકી છે. આ AI આધારિત તૈયાર કરાયેલા સ્માર્ટ મિરરની મદદથી દર્દીઓની હિલચાલ પરથી નિદાન આપશે.

કોઈ પણ રોગની સારવાર માટે ફિઝિયોથેરાપી મહત્વની કડી હોય છે. તેમજ મોશન એનાલિસિસ માટે પરંપરાગત લેબનો ઉપયોગ થતો હોય છે જેનો ખર્ચો પણ વધારે થતો હોય છે. જેની સામે સ્માર્ટ મિરર ઝડપી અને સચોટ સારવાર કરશે. તેમજ દર્દીને ઘરબેઠા પણ ફિઝિયોથેરાપી લઈ શકશે. આ માટે દર્દીઓઅને રોજ રોજ હોસ્પિટલ જવાની ઝંઝટમાંથી પણ મુક્તિ મળશે. SVNITના પ્રોફેસર ડો. ચંદ્ર પ્રકાશ અને IGDTUWના પીએચડી સ્કોલર ડો.ડિમ્પલ સેઠી, IGDTUWના પ્રોફેસર એ.કે મહાપાત્રા અને પ્રોફેસર અમિતા દેવે સાથે મળીને આ પ્રોજેક્ટ પર કામ કર્યું હતું. આ પ્રોજેક્ટને જૂન ૨૦૨૫માં સ્માર્ટ ફિઝિયોથેરાપી માટે પેટન્ટ પણ મળી ચુકી છે.

ઘરે બેસીને પણ થઈ શકશે સારવાર

ફિઝિયોથેરાપી માટે દર્દીઓએ હોસ્પિટલ કે ક્લિનિકમાં જવાની જરૂર નહી પડે. પેશન્ટ ઘરે બેસીને પણ ફિઝિયોથેરાપીની સારવાર લઈ શકશે. એવા દર્દીઓ કે જેઓ સરળતાથી હલન ચલન નથી કરી શકતા ખાસ કરીને વૃધ્ધો તેઓ માટે આશિર્વાદ સમાન છે.

કેવી રીતે કામ કરે છે મિરર?

સ્માર્ટ મિરરમાં એક કેમેરો લાગેલો હોય છે જે દર્દીની હિલચાલને ટ્રેક કરે છે. હાથ, પગ, ગરદન, કમર, ખભા વગેરેની હિલચાલને અલ્ગોરીધમની મદદથી વિશ્લેષણ કરે છે. અને દર્દીને જણાવે છે કે શરીરમાં કઈ હીલચાલ ખોટી છે. સાથે દર્દીને ઈજાના હિસાબે યોગ્ય કસરત કરવા માટે પણ સુચના આપે છે. આ તમામ સારવાર માત્ર એક મિરર અને કેમેરાની મદદથી શક્ય બનશે.

- The smart mirror enables **affordable and convenient** physiotherapy.
- It opens up a new way to **understand human motion** without the need for costly sensors.
- Traditional physiotherapy relies heavily on manual assessment and treatment.
- This smart device **analyzes posture and movement in real time**, helping patients perform exercises correctly from home.

DEPARTMENTAL ACHIVEMENTS

જૂની પદ્ધતિથી અટેન્ડેન્સ મૂકતા જોઇ યાત્રાને ઓટોમેટેડ એટન્ડન્સ સિસ્ટમ બનાવાનો આઇડિયા આવ્યો

સ્ટૂડન્ટ્સે CCTV કેમેરાથી અટેન્ડસ સિસ્ટમ ડેવલપ કરી

તલ્હા બેલીમ. સુરત

કોમ્પ્યુટર એન્જિનિયરીંગમાં ફાઇનલ યરમાં અભ્યાસ કરતી બે વિદ્યાર્થીની યાત્રા વઘાસિયા અને હસ્તી ગુંદારણિયા દ્વારા ફેસિયલ રિકગનીશન આધારિત અટેન્ડન્સ સિસ્ટમ ડેવલપ કરાઇ છે. આ બંને વિદ્યાર્થીઓએ તેમના છેલ્લા વર્ષના ઇન્ટર્નશીપ પ્રોજેક્ટ તરીકે આ સિસ્ટમ ડેવલપ કરી છે.

કોલેજમાં પ્રોફેસર દ્વારા પેન-પેપર થકી લેવાતી અટેન્ડેન્સ સિસ્ટમ જોઇ યાત્રાને એક ઓટોમેટેડ એટેન્ડન્સ સિસ્ટમ ડેવલપ કરવાનું ખ્યાલ આવ્યો હતો. આ સિસ્ટમ બનાવવામાં તેઓને 6 મહિનાનો સમય લાગ્યો હતો. SVNITના બે ક્લાસરૂમમાં આ સિસ્ટમને પાઇલટ પ્રોજેક્ટ તરીકે ઉપયોગમાં લેવાઇ રહી છે.

વિદ્યાર્થીઓ સિસ્ટમમાં લોગ-ઇન કરી પોતાની માહિતી અપલોડ કરે છે

સૌપ્રથમ વિદ્યાર્થીઓ લોગ-ઇન કરી નામ અને ફોટો સહિતની પોતાની માહિતી આ સિસ્ટમમાં અપલોડ કરે છે. જે સિસ્ટમમાં સ્ટોર થાય છે. ત્યારબાદ સિસ્ટમ ક્લાસરૂમના CCTV કેમેરામાં દેખાતા વિદ્યાર્થીઓનો ડેટા સિસ્ટમને આપે છે. જેથી ક્લાસ અટેન્ડ કરનારા વિદ્યાર્થીઓને CCTV કેમેરા થકી આઇડેન્ટીફાઇ કરી ઓટોમેટિકલી જ એટેન્ડન્સ મૂકાઇ જાય છે.

SVNITના બે ક્લાસમાં સિસ્ટમ ઇન્સ્ટોલ કરાઇ

યાત્રા અને હસ્તી દ્વારા બનાવવામાં આવેલી આ સિસ્ટમ હાલ SVNITના કોમ્પ્યુટર એન્જિનિયરીંગ વિભાગના બે ક્લાસરૂમમાં પાઇલટ પ્રોજેક્ટ તરીકે ઇન્સ્ટોલ કરવામાં આવી છે. જ્યાં આ સિસ્ટમનો ઉપયોગ કરી વિદ્યાર્થીઓની અટેન્ડન્સ પૂરાય છે. જો કોલેજ તરફથી પરવાનગી અપાશે તો કોલેજના અન્ય ક્લાસરૂમમાં પણ આ ફેસિયલ રિકગનિશન અટેન્ડન્સ સિસ્ટમ ઇન્સ્ટોલ કરાશે. આ પ્રોજેક્ટ ડેવલપ કરવા કોમ્પ્યુટર વિભાગના પ્રોફેસર રૂપા મહેતાએ વિદ્યાર્થીનીઓને ગાઇડ કરી હતી. જેથી વિદ્યાર્થીનીઓએ પોતે જ પ્રોગ્રામિંગ કરી આ સિસ્ટમ બનાવી છે.

CCTV-Based Automated Attendance System

Prof. Rupa G. Mehta and her student **Yatra A. Vaghasia (U21CS088)** have created "An Open-Source Facial-Recognition based Attendance System".

The increasing need for automation and accuracy in student attendance tracking has led to the adoption of biometric authentication systems. This project presents an AI-driven attendance management system using facial recognition to streamline the process of student identification in university classrooms.

Previously, the process of recording attendance manually consumed valuable classroom time. This system was designed to solve that issue efficiently. The development process took about six months to complete.

The system is currently installed and operational in two classrooms at SVNIT, where it is being pilot tested as part of the department's ongoing efforts to adopt digital solutions.

Advantages of the System:

- Automates attendance with high accuracy.
- Reduces class time wasted on roll calls.
- Uses existing CCTV systems, minimizing additional infrastructure costs.
- Enhances transparency and accountability in attendance tracking.

DEPARTMENTAL ACHIVEMENTS

मंडे पॉजिटिव साक्षी की रिसर्च को IEEE OTCON 2025 में 440 शोधपत्रों में बेस्ट पेपर अवॉर्ड दिया गया

कलर ब्लाइंड लोगों की दुनिया को स्पष्ट बनाने के लिए SVNIT की छात्रा ने तकनीक बनाई, इससे चार्ट, रिपोर्ट व ट्रैफिक सिग्नल के रंग भी पहचान सकेंगे

भावना झा | सूरत

गाइड डॉ. चंद्रप्रकाश के मार्गदर्शन में 4-5 कलर ब्लाइंड लोगों पर 6 महीने तक रिसर्च कर बनाई तकनीक

हम रोज रंगों के सहारे दुनिया को समझते हैं, जैसे ट्रैफिक सिग्नल, स्कूल या कामकाज से संबंधित चार्ट, मोबाइल एप और मेडिकल रिपोर्ट। सोचिए, अगर किसी के लिए रंगों में अंतर करना मुश्किल हो तो क्या होगा। कलर ब्लाइंड लोग ऐसी ही मुश्किलों से गुजरते हैं। इस समस्या को समझते हुए सरदार वल्लभभाई नेशनल इंस्टीट्यूट ऑफ टेक्नोलॉजी (एसवीएनआईटी) की एमटेक की छात्रा साक्षी पडमवार और असिस्टेंट प्रोफेसर डॉ. चंद्रप्रकाश ने AI आधारित ऐसी तकनीकी विकसित की है, जो कलर ब्लाइंड लोगों की रंगों की दुनिया को स्पष्ट बनाएगी।

इस तकनीक से तस्वीरों के रंग इस तरह बदले जाते हैं कि कलर ब्लाइंड लोग ट्रैफिक सिग्नल जैसे जरूरी संकेत भी आसानी से देख सकें। इसके लिए 4 से 5 ऐसे लोगों पर रिसर्च किया गया, जो इस समस्या से पीड़ित हैं। इस रिसर्च में 6 महीने का समय लगा और इसे राष्ट्रीय स्तर पर भी पहचान मिली। साक्षी के इस शोध को देशभर से आए 440 शोधपत्रों में से चुना गया। इसे छत्तीसगढ़ में आयोजित IEEE OTCON 2025 में Best Paper Award मिला। यह सम्मान तकनीकी नवाचार और सामाजिक उपयोगिता को मान्यता देता है।

▪ **कलर ब्लाइंड बच्चों को स्कूल में रंगीन चार्ट पढ़ने में परेशानी नहीं होगी** | साक्षी का शोध 'कलर ब्लाइंड-फ्रेंडली इमेज री-कलरिंग यूजिंग जेनरेटिव एडवरसरियल नेटवर्क्स' पर आधारित है। इसमें उन्होंने ऐसे एल्गोरिद्म यानी निर्देशों का एक समूह विकसित किया है, जो किसी भी डिजिटल छवि के रंगों को इस तरह से संशोधित करता है कि कलर ब्लाइंड व्यक्ति भी उनमें मौजूद जानकारी को आसानी से समझ सकें। यह प्रक्रिया रंगों के बीच का कंट्रास्ट ऐसे बढ़ाती है कि आवश्यक सूचना साफ दिखे।

ऐसे काम करेगी तकनीक

- यह तकनीक जेनरेटिव एडवरसरियल नेटवर्क्स (GANs) पर आधारित है।
- यह मशीन लर्निंग की एक शाखा है, जो दो न्यूरल नेटवर्क्स की मदद से काम करती है।
- एक छवि को री-कलर करती है और दूसरी उसकी गुणवत्ता की जांच करती है।
- इसमें किसी इमेज को पहले CVD विजन (कलर ब्लाइंड नजरिया) से देखा जाता है, फिर उसे इस तरह री-कलर किया जाता है कि कलर ब्लाइंड व्यक्ति भी जानकारी को पहचान सके।

कहां हो सकता है उपयोग

- इस तकनीक का इस्तेमाल चार्ट, ग्राफ और क्लासरूम मटेरियल को कलर ब्लाइंड छात्रों के लिए समझने में आसान बनाया जा सकता है।
- वेबसाइट और मोबाइल एप में बटन, लेबल और अलर्ट, जो रंगों पर आधारित होते हैं, उन्हें कलर ब्लाइंड यूजर्स के लिए ज्यादा स्पष्ट बनाया जा सकता है।
- AR चश्मों में यह तकनीक रियल टाइम में रंगों को एडजस्ट कर सकती है। इससे कलर ब्लाइंड लोग ट्रैफिक लाइट, रंग-कोडेड नक्शे और प्रोडक्ट पैकेजिंग को बेहतर ढंग से समझ सकते हैं।

BEST PAPER IN 4th OPJU International Technology Conference (OTCON) on Smart Computing for Innovation and Advancement in Industry 5.0 ,
OP Jindal University, Raigarh, 9-11 April, 2025, IEEE.

We interpret the world around us through colors — traffic signals, school charts, mobile apps, and medical reports. But for color blind people, this is a daily challenge.

To solve this, SVNIT student **Sakshi**, under the guidance of **Dr. Chandraprakash**, developed an innovative AI-based technology to help color blind individuals identify colors in charts, reports, and even traffic signals. The system uses Generative Adversarial Networks (GANs) to convert colors in images into distinguishable forms for color blind users.

The technology was developed after 6 months of research involving 4–5 color blind individuals.

- ◇ It won the Best Paper Award at IEEE OTCON 2025 among 440 research papers.
- ◇ The system helps color blind users easily interpret essential color-coded information used in schools, traffic signals, medical data, and daily life.

PhD COMPLETED

Mayur Makwana (DS18CO003)

Defended his PhD thesis titled "**Unveiling Novel Approaches for Document Recommendation Using Deep Learning Approaches in the Domains of Scholarly Literature & Indian Legal Judgments**" in April 2025. He has worked under the supervision of Prof. Rupa G. Mehta.

Ph. D. Viva-voce Date: 25th April 2025

Chandan Trivedi (D19CO001)

Defended his PhD thesis titled "**Lightweight Key Management and Authentication Schemes for Internet of Healthcare Thing**" in April 2025. He has worked under the supervision of Dr. Keyur Parmar and Dr. Udai Pratap Rao. (NIT - Patna)

Ph. D. Viva-voce Date: 15th April 2025

ALUMNI

Mukul Khandelwal (CS Batch 2014–18)

We are proud to share the remarkable achievement of our esteemed alumnus, **Mukul Khandelwal**, a student of the Computer Science Department, Batch of 2014–18. After successfully completing his engineering education, Mukul began his professional journey with Indian Oil Corporation Limited (IOCL), Mumbai, where he has been contributing with dedication and excellence.

Mukul has now added another feather to his cap by securing an All India Rank of 229 in the prestigious UPSC Civil Services Examination. The department extends its heartfelt thanks to Mr. Mukul Khandelwal for taking time to engage with current students and for sharing his inspiring journey and expertise.

ROBOTICS WORKSHOP ORGANIZED

Robotic Workshop

The Computational Intelligence and Smart Motion Robotics (CISMR) Lab at SVNIT Surat organized a 3-day Robotics Workshop from 28th to 30th March under the mentorship of Dr. Chandra Prakash. The workshop was designed to introduce students to the fundamentals of robotics through hands-on activities and virtual simulations. A total of 45 students actively participated in the event.

FACULTY COORDINATOR:
Dr. Chandra Prakash

TOPICS COVERED:

- Basics of Arduino programming
- Interfacing of sensors and actuators
- Circuit simulation using Tinkercad,
- Development of manual control bots and line follower robots
- The final day featured a line follower robot competition, where student teams showcased their functional bots navigating a predefined path.

SHORT-TERM TRAINING PROGRAM

Short Term Training Program

"AI / ML in Cybersecurity"

DATE:
28 Feb - 02 Mar, 2025 &
08-09 Mar, 2025

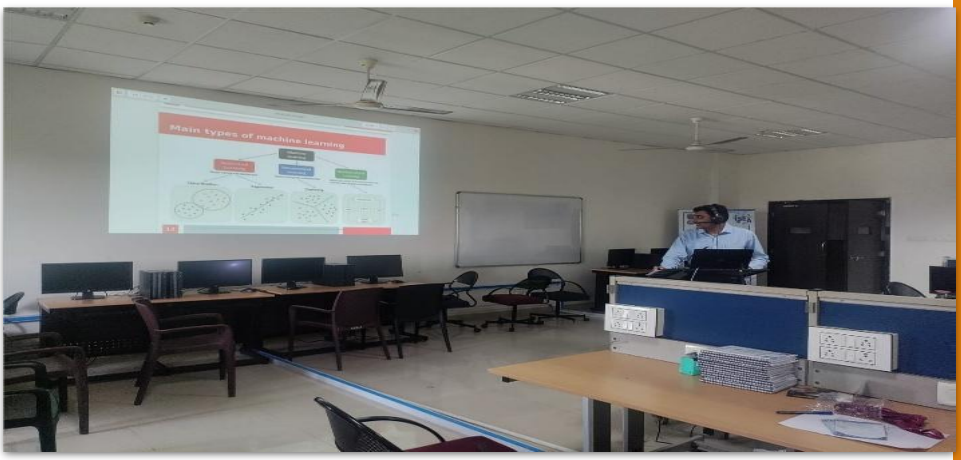
MODE:

HYBRID

SPONSORING AGENCIES:
Information Security Education and Awareness Project Phase III by Meity Conducted by SVNIT, Surat

FACULTY COORDINATORS:
Dr Sankita J Patel,
Dr Bhavesh N Gohil

The 5-day short-term course on AI/ML in Cybersecurity delved into the critical role of security in emerging technologies like cloud computing, blockchain, and the Internet of Things (IoT). Participants engaged in interactive hands-on sessions, including Wi-Fi hacking and web crawling, gaining practical experience. The course also highlighted the applications of generative AI in cybersecurity, offering valuable industry insights.



TOPICS COVERED:

- Fundamentals of Security and Machine learning
- Securing the cloud resources
- Bluetooth Hacking
- Applications of AI / ML in Cyber security
- Generative AI

Esteemed speakers **Mr. Ravindra Pandya** (Lead Software Engineer and Technology Trainer, Ensura Infotech) and Vaidik Pandya (Founder and CEO of TheCyberBoy) shared their expertise, enriching the learning experience. The event attracted around 50 participants from various academic institutions, fostering knowledge-sharing and skill development.

SHORT-TERM TRAINING PROGRAM

The Department of Computer Science and Engineering and Artificial Intelligence (AI) have successfully conducted a Short-Term Training Program (STTP) on "**Advancements in Machine Learning and Accelerated Computing (AMLAC-25).**"

Advancements in Machine Learning and Accelerated Computing (AMLAC-25)

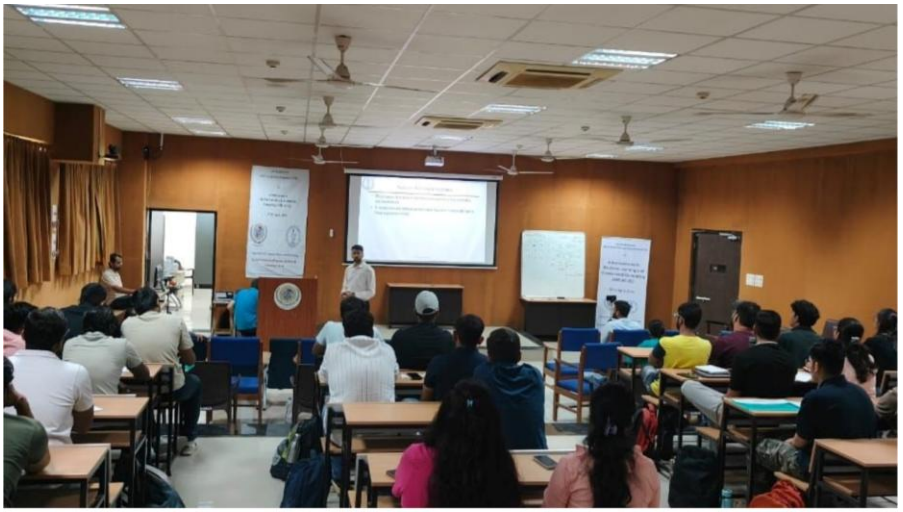
The program provided participants with insights into the latest advancements in machine learning techniques and the role of accelerated computing in driving innovation in AI. It covered the topics such as deep learning, generative models, and the use of GPUs for solving complex computational problems.

FACULTY COORDINATORS:

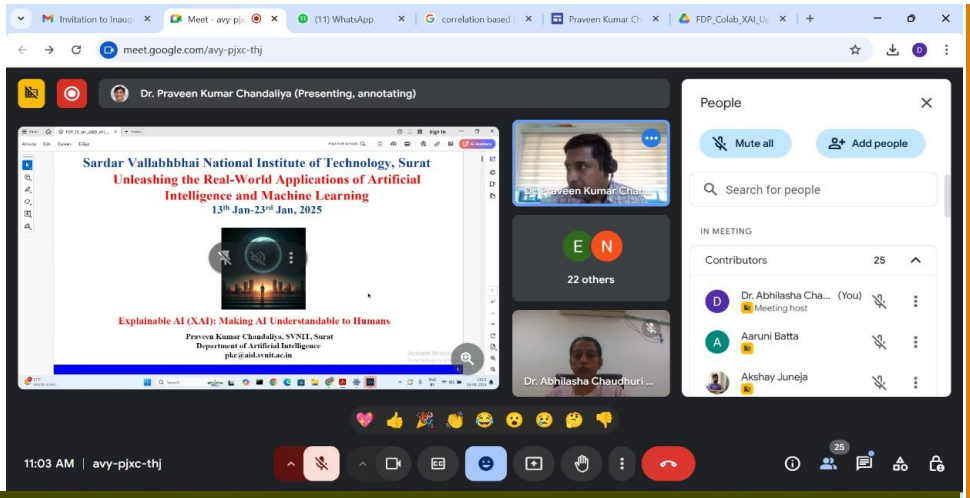
Dr. Anugrah Jain
Dr. Vishesh P. Gaikwad
Dr. Chandra Prakash

TOPICS COVERED:

- Machine Learning
- Deep Learning
- Generative Adversarial Networks
- Transformer and LLM
- Explainable Artificial Intelligence Introduction to Accelerated
- Computing Accelerated Computing using OpenMp
- Accelerated Computing using CUDA
- Applications of CUDA
- Hands-on: Python/Pytorch/Keras for Machine Learning



FACULTY DEVELOPMENT PROGRAM



"Unleashing the Real-World Applications of Artificial Intelligence and Machine Learning"

DATE:
13 Jan - 23 Jan 2025

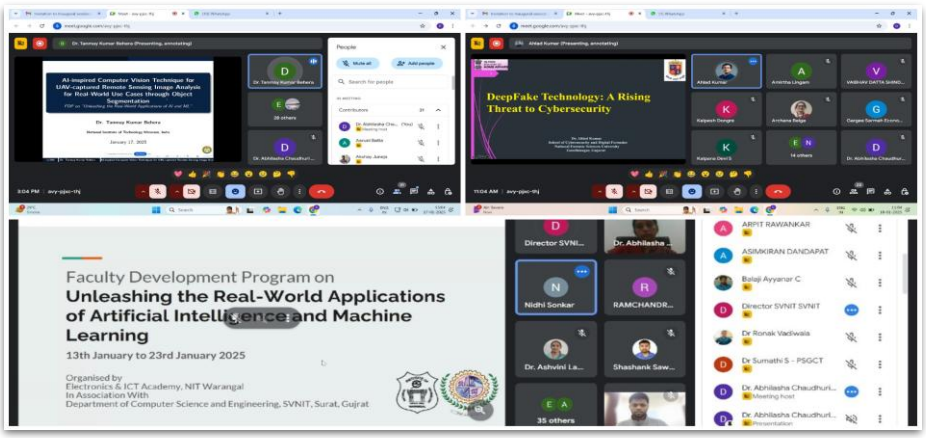
MODE:
ONLINE

ORGANISED BY
Electronics & ICT Academy,
NIT Warangal

SPONSORING AGENCIES:
Ministry of Electronics and Information Technology (MeitY), GoI

FACULTY COORDINATORS:
Dr. Nidhi Sonkar, NIT Warangal
Dr. Abhilasha Chaudhuri, SVNITSurat

This FDP was devoted to addressing the need to enhance the knowledge about the latest technologies pertaining to Unleashing the Real-World Applications of Artificial Intelligence and Machine Learning was conducted in online mode at National Institute of Technology, Warangal and Sardar Vallabhbhai National Institute of Technology, Surat. The whole course was handled by academicians and industry experts.



TOPICS COVERED:

- Core concepts of AI and ML
- Data Preparation and Management
- Ethics and Responsible AI
- Real-world case studies
- Collaborative inter disciplinary Approaches
- Applications in Healthcare, finance, transportation, cyber security etc.
- Hands on exercises

The FDP has received good response from the faculties and has received 67 registrations from all over India. This FDP covered the basic concepts of ML and AI, data preparation and management and then various recent application areas like, cyber forensics, cognitive science, energy optimization, LLM, Deep fakes etc. were discussed. Overall, this FDP tried to bring excellence in teaching and research.

EXPERT TALKS DELIVERED

Prof. Mukesh Zaveri delivered an expert Talk on “Machine Learning Essentials: Concepts and Applications” at Five-Days FDP on Deep Learning With GPU: A Hands on Training organized Department of Electronics Engineering Sardar Vallabhbhai National Institute of Technology, Surat on 26 May 2025

Prof. Mukesh Zaveri delivered an expert Talk on “Machine Learning and its Applications” at Short-Term Training Programme (STTP) on Advancements in Machine Learning and Accelerated Computing (AMLAC-25) organized by the Department of Computer Science and Engineering of Sardar Vallabhbhai National Institute of Technology, Surat during 07 April 2025 - 12 April 2025.

Dr. Bhavesh Gohil delivered an expert Talk on "Malware identification and classification in Android" at FDP on Malware Analysis with Data Science at EICT, NIT Patna(June 28, 2025)

Dr. Bhavesh Gohil delivered an expert Talk on "Career paths after Computer Science/Engineering/Applications" at Vanita Vishram University, Surat(June 21, 2025)

Dr. Bhavesh Gohil delivered an expert Talk on "Security in Cloud and Container Environment" at ISEA Phase III, MeitY sponsored STTP on Cyber Threats Intelligence and Forensics (CTIF 2025) at NIT Bhopal(March 7, 2025)

Dr. Bhavesh Gohil delivered an expert Talk on "Safer Internet Day" at SVNIT Surat(sponsored by ISEA Phase III, MeitY)(Feb. 11, 2025)

Dr. Sankita Patel delivered an expert Talk on "Cybersecurity Fundamentals" at FDP on Information Security and Privacy Preserving Strategies for IoT from 27th January 2025 to 6th February 2025 by Electronics and ICT Academy, NIT Warangal and SVNIT Surat, sponsored by MeiTy, Govt. of India, Date: 28th January, 2025

Dr. Chandra Prakash delivered some expert talks at following institutes:

- Expert talk on “Brain Computer Interface (BCI) & Deep Sequence Modeling” in an event organized by IEEE Signal Processing Society (SPS) at SSN College of Engineering , Chennai, 2 June 2025.
- Expert Talk on “New Frontiers in DL: foundation and LLM Models” in Faculty Development Program on 'Exploring Large Language Models: Innovations, Applications & Future Prospects' scheduled at Sharda University, Nodia, 26th May - 02 June 2025.
- Expert talk on “Emerging Trends In Wearable Healthcare Technology” in Seminar on Wearable Devices for Revolutionize Healthcare at Sethu Institute of Technology, Madurai, 22-23 May 2025.
- Expert talk on "Statistical Comparison of Algorithms" in FDP on Machine Learning- Basic to Beyond, MNIT Jaipur, May 01 - May 10, 2025.
- Expert Talk on " From Neuron to Deep Learning” in EICT and MeitY, GoI, sponsored one week FDP on Use of AI in Education and Research” at WALCHAND COLLEGE OF ENGINEERING Sangli, Maharashtra, 28th April to 3rd May 2025.
- Expert talk on "From Neuron to Deep Learning : The Computational Revolution" in STTP on One Week Hybrid Short-Term Training Programme (STTP) on Advancements in Machine Learning and Accelerated Computing (AMLAC-25) at SVNIT from 07-12 April, 2025.

EXPERT TALKS DELIVERED

- Expert Talk on "Vision-based Robotic Hand Control" in STTP on "Ethical AI and ML for Innovation: Exploring Technologies and Applications" at SVNIT from 24 Feb - 07 March, 2025.
- Expert Talk on "Robotic Hand Control mechanism Using Deep Learning" in FDP on "Advances in Robotics and Machine Learning (ARML-2025)" at the Department of Electrical Engineering, National Institute of Technology Patna from 10-14 February 2025.
- Expert Talk on "Quantitative Analysis of Gait Disorder using ML in Cerebral palsy patients" in ATAL FDP on Advancements in AI for healthcare and medical imaging at Marwadi University, 21-25 Jan 2025.
- Expert Talk on " Supervised machine learning algorithms II (Naïve Bayes, Random Forest, SVM)" in Self -sponsored STC on Applied Machine Learning using Python (AML-Py'25), at National Institute of Technology Kurukshetra, 03-07, January 2025.

Dr. Keyur Parmar delivered an expert talk on "The Double Spend Problem" in One-Week Online Short-Term Training Programme (STTP) on AI/IoT-Driven Cybersecurity, Blockchain and its Applications organized by UGC-Malaviya Mission Teacher Training Centre (MMTTC), NIT Warangal, Telangana, India, PIN: 506004

Dr. Abhilasha Chaudhuri delivered an expert lecture in an online Workshop on "Data Science and its Applications" from January 13, 2025, to January 29, 2025 on the topic "Case Study: Handling Highly Imbalanced Microarray Data". The workshop was organized by Department of Computer Science & Engineering, NIT Raipur, Chhattisgarh

Dr. Abhilasha Chaudhuri Delivered an expert lecture in Five-Day Online Faculty Development Program (FDP) on: "Blockchain-Powered Machine Learning: Future of AI Security and Transparency" scheduled from 19th May 2025 to 23rd May 2025, organized by OP Jindal University, Raigarh, Chhattisgarh.

Dr. Anugrah Jain delivered expert talks on "Accelerated Computing using OpenMP" and "Accelerated Computing using CUDA" at Short-Term Training Programme (STTP) on Advancements in Machine Learning and Accelerated Computing (AMLAC-25) organized by the Department of Computer Science and Engineering of Sardar Vallabhbhai National Institute of Technology, Surat during 07 April 2025 - 12 April 2025.

Dr. Anugrah Jain delivered an expert talk on "CUDA Programming" at Short-Term Training Programme (STTP) on Ethical AI/ML for Innovation: Exploring Technologies and Applications organized by the Department of Artificial Intelligence of Sardar Vallabhbhai National Institute of Technology, Surat during 24 February 2025 - 7 March 2025.

Dr. Naveen Kumar delivered expert Talk on " "The Evolution of LLM" on 27th February 2025 as part of the Online FDP on Unleashing the Real-World Applications of Artificial Intelligence and Machine Learning (13th Jan–23rd Jan 2025).

EXPERT TALKS DELIVERED

Dr. Anugrah Jain delivered expert talks on "Accelerated Computing using OpenMP" and "Accelerated Computing using CUDA" at Short-Term Training Programme (STTP) on Advancements in Machine Learning and Accelerated Computing (AMLAC-25) organized by the Department of Computer Science and Engineering of Sardar Vallabhbhai National Institute of Technology, Surat during 07 April 2025 - 12 April 2025.
Dr. Anugrah Jain delivered an expert talk on "CUDA Programming" at Short-Term Training Programme (STTP) on Ethical AI/ML for Innovation: Exploring Technologies and Applications organized by the Department of Artificial Intelligence of Sardar Vallabhbhai National Institute of Technology, Surat during 24 February 2025 - 7 March 2025.
Dr. Naveen Kumar delivered expert Talk on " "The Evolution of LLM" on 27th February 2025 as part of the Online FDP on Unleashing the Real-World Applications of Artificial Intelligence and Machine Learning (13th Jan–23rd Jan 2025).
Dr. Naveen Kumar delivered expert Talk on "Enforcing Security Against Major Attacks in Named Data Networking" on 03 Feb 2025, as part of the Online FDP on "Information Security and Privacy Preserving Strategies for IoT" (27th Jan–06th Feb 2025).
Dr. Naveen Kumar delivered expert Talk on The Evolution of LLM" on 22nd January 2025 as part of the Online FDP on Unleashing the Real-World Applications of Artificial Intelligence and Machine Learning (13th Jan–23rd Jan 2025).

EXPERT TALKS ORGANIZED

Institute has celebrated Safer Internet Day on 11th February, 2025 as a part of Ministry of Electronics and Information Technology (MeiTy), Govt. of India initiative and under the ages of Information Security Education and Awareness (ISEA) Project-III sponsored by MeiTy.

The celebration aimed to raise awareness about emerging online issues and current concerns. This year, the Safer Internet Day was celebrated under the theme of "Together for a Better Internet". This initiative, organized under ISEA project, aimed to educate diverse internet users on safe online practices, cyber hygiene, major cyber threats and effective mitigation strategies, while fostering responsible internet usage among citizens. For this, an expert talk was organized on 11th February, 2025 in the Auditorium hall of Department of CSE, SVNIT.

The department Organized an Interactive Session with Padma Shri **Prof. Sanghamitra Bandyopadhyay**, Director, Indian Statistical Institute, Kolkata and **Dr. Ujjwal Maulik**, Professor, Department of Computer Science and Engineering, Jadavpur University, Kolkata on 28 Feb 2025 for the celebration of National Science Day.

JOURNAL/CONFERENCE/BOOK PUBLICATIONS

Kashish D. Shah, Dhaval K. Patel, Brijesh Soni, Siddhartan Govindasamy, Mehul S. Raval, Mukesh A. Zaveri, "Dynamic Spectrum Coexistence of NR-V2X and Wi-Fi 6E using Deep Reinforcement Learning", IEEE Open Journal of Computer Society, June 2025 (accepted).

Vaishali S. Pawar, Mukesh A. Zaveri, Radhika P. Chandwadkar, Varsha H. Patil, "Graph based K-Means Clustering for Symbol Recognition", Proceedings of Ninth International Conference on Smart Trends in Computing and Communications (SmartCom 2025), January 29-31, 2025, Pune, India.

Rozy Kumari, Rutal Mahajan, Mukesh A. Zaveri, "Privacy-Preserving Quantum Natural Language Processing for Secure Text Classification", Proceedings of 3rd International Conference on Computer Electronics, Electrical Engineering and their applications (IC2E3 2025), 14-15 May 2025, NIT Uttarakhand, India.

Srivastava, N.; Bhavesh N. Gohil, Ridership Trend Analysis and Explainable Taxi Travel Time Prediction for Bangalore Using e-Hailing. In Proceedings of the 7th International Conference of Transportation Research Group of India (CTRG 2023); Springer Nature: Berlin/Heidelberg, Germany, 2025; Volume 2, pp. 383–400

Shivangi Shukla and Sankita J. Patel, A Novel Pairing-Free ECC-Based Ciphertext-Policy Attribute-Based Proxy Re-Encryption for Secure Cloud Storage, In Proceedings of the 11th International Conference on Information Systems Security and Privacy (ICISSP 2025) - Volume 1, pages 225-233, ScitePress, ISBN: 978-989-758-735-1; ISSN: 2184-4356, February 2025.

Venkata Sankirtana Guntuboina,Mahitha Gurrala,Krithikha Balamurugan,NandhiniK.S.Rengan, and Sankita J. Patel, Secure sharing of CCTV Feed, In International Conference on Network Security and Blockchain Technology (ICNSBT 2024), Lecture Notes in Networks and Systems, Springer Singapore, January 2025.

Prarthana J. Mehta, Balu L. Parne, Sankita J. Patel, P3AKA: A PUF based privacy preserving authentication and key agreement framework for secure communication in vehicle to grid network, Vehicular Communications, Volume 54, 2025, 100925, ISSN 2214-2096, Elsevier, April 2025.

Ravikant Kumar Nirala, Gautam Kumar, Rishav Singh, Chandra Prakash, 3DSPECSN: Adaptive 3D Spatial Patch based Siamese Network for Robust Hyperspectral Image Analysis, Computers and Electrical Engineering. (2025). (SCIE Impact factor 4.0)

Rahul Mishra, Chandra Prakash; Identification of Diabetic foot ulcer using thermogram with Shallow and Deep Learning Techniques, IEEE INDISCON 2025, NIT Rourkela, August 21-23, 2025. [Accepted]

Abhishek Naik, Chandra Prakash; Deep Learning based Abnormal Gait Classification Using Plantar Foot Pressure Data for publication in the ICAAAIML-2025: International Conference on Advances and Applications of Artificial Intelligence and Machine Learning, Sharda University Greater Noida, Uttar Pradesh, India 18-19 July 2025. [Accepted]

Dhruv Tyagi, Ayush Biyani, Chandra Prakash Reinforcement Learning and Heuristic Based Approach for Solving the Cutting Stock Problem: A Comparative Analysis, 2nd International Conference on "Artificial Intelligence & Machine Vision," Pandit Deendayal Energy University (PDEU), Gandhinagar, Gujarat, India, 16 – 17 August 2025. [Accepted]

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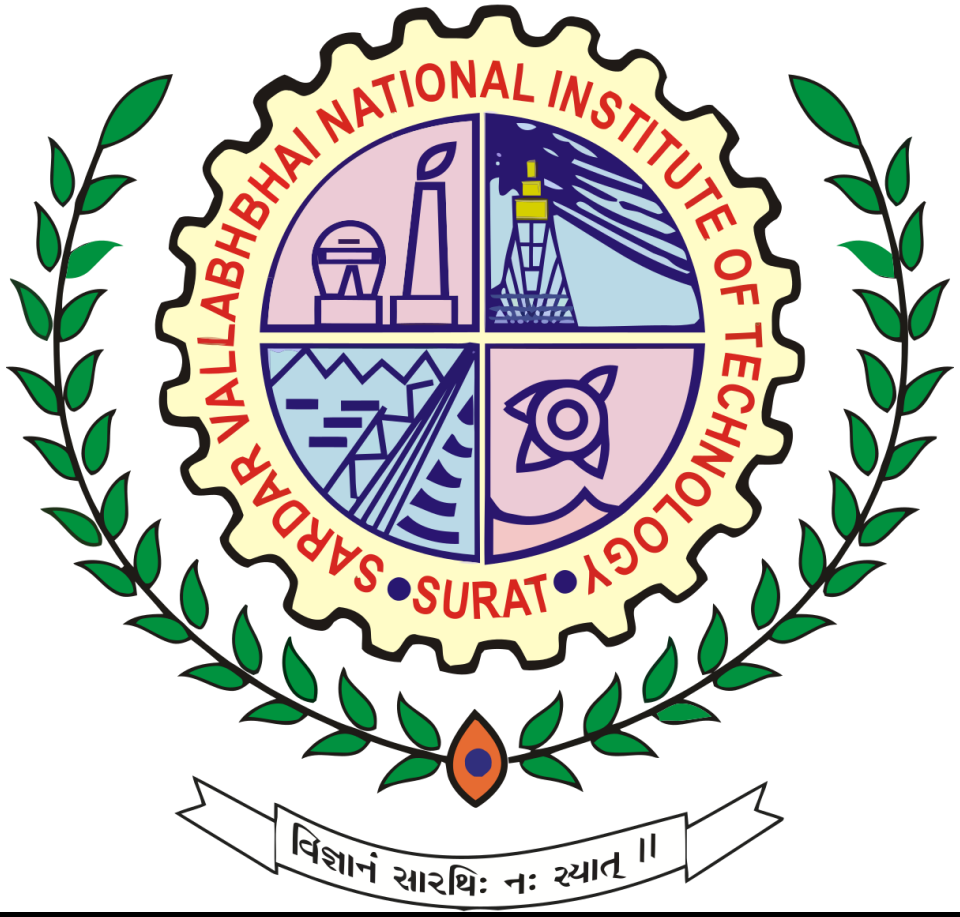

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY
ICHCHHANATH, SURAT – 395007

NEWSLETTER DESIGN COMMITTEE: DR. ABHILASHA CHAUDHURI, KARISHMA A. PATEL