Report

on
Faculty Development Programme
on
"AI and Explainable AI in Healthcare: Current Trends and Future Research Possibilities"

(FDP Id: 1715937969)

Dates: 25th to 30th November 2024

Coordinators:

Prof. (Dr.) Mayuri Mehta, Department of Computer Engineering
Prof. (Dr.) Dhruti Sharma, Department of Information Technology

Schedule of the FDP

Day 1 25th Nov 2024, Monday	Day 2 26th Nov 2024, Tuesday	Day 3 27th Nov 2024, Wednesday	Day 4 28th Nov 2024, Thursday	Day 5 29th Nov 2024, Friday	Day 6 30th Nov 2024, Saturday
9:00 – 9:30 **Welcome and Opening Remarks**					
9:30 – 12:00 **Session 1** 1. **Name of the Expert:** *Dr. Mayuri Mehta* 2. **Designation:** *Professor* 3. **Organization:** *Sarvajanik College of Engineering and Technology, Surat* 4. **Experience in Years:** *23 Years* 5. **Topic to be taught:** *How AI and Explainable AI (XAI) are Transferring the Healthcare Industry*	**9:30 – 12:00** **Session 3** 1. **Name of the Expert :** *Mr. Dipanjan Sarkar* 2. **Designation:** *Head of Community and Principal AI Scientist* 3. **Organization:** *Analytics Vidhya and Self-employed* 4. **Experience in Years:** *12 Years* 5. **Topic to be taught:** *Generative AI and Large Language Models in Healthcare*	**9:30 – 12:00** **Session 5** 1. **Name of the Expert :** *Dr. Devesh C. Jinwala* 2. **Designation**: *Professor* 3. **Organization:** *NIT, Surat* 4. **Experience in Years:** 33 Years 5. **Topic to be taught:** *Adversarial Machine Learning in e-Health*	**9:30 – 12:00** **Session 7** 1. **Name of the Expert :** *Dr. Shilpa Gite* 2. **Designation:** *Professor* 3. **Organization:** *Symbiosis Institute of Technology, Pune* 4. **Experience in Years:** *18 Years* 5. **Topic to be taught:** *Explainable AI in Healthcare: Methods, Forms and Frameworks*	**9:00 – 1:00** **Industrial visit** 1. **Name of the Organization:** *Sahajanand Medical Technologies Pvt. Ltd. (SMT)* 2. **Complete address with pincode :** *Sahajanand Estate, Wakhariawadi, Near Dabholi, Ved Road, Surat – 395 004. Gujarat, India.* 3. **Industry Type:** *company to manufacture medical equipment using AI technologies* 4. **Area of specification :** *Medical stent used to treat narrow or weak arteries*	**9:30 – 12:00** **Session 10** 1. **Name of the Expert:** *Prof. Rachana Oza* 2. **Designation:** *Assistant Professor* 3. **Organization:** *Sarvajanik College of Engineering and Technology, Surat* 4. **Experience in Years:** *14 Years* 5. **Topic to be taught:** *Robot-assisted Minimally Invasive Surgery using AI-basedCAS Systems*
12:00 – 1:00 **Article Discussion** 1. **Title of the Research Paper:** *Effect of image binarization thresholds on breast cancer identification in mammography images*	**12:00 – 1:00** **Article Discussion** 1. **Title of the Research Paper:** *Tear film breakup time-based dry eye disease detection using convolutional neural network*	**12:00 – 1:00** **Article Discussion** 1. **Title of the Research Paper:** *Analytics of deep model-based spatiotemporal and spatial feature learning methods for surgical*	**12:00 – 1:00** **Article Discussion** 1. **Title of the Research Paper :** *Kids' emotion recognition using various deep-learning models with explainable ai*		**12:00 – 1:00** **Article Summary**

using OTSU, Niblack, Burnsen, Thepade's SBTC 2. **Name of the journal:** *Intelligent Systems with Applications, Elsevier* 3. **Year of Publication:** *2021*	2. **Name of the journal:** *Neural Computing and Applications, Springer* 3. **Year of Publication:** *2022*	*action classification* 2. **Name of the journal:** *Multimedia Tools and Applications, Springer* 3. **Year of Publication:** *2023*	2. **Name of the journal:** *Sensors* 3. **Year of Publication:** *2022*		
1:00 – 2:00 **Lunch**	**1:00 – 2:00** **Lunch**	**1:00 – 2:00** **Lunch**	**1:00 – 2:00** **Lunch**	**1:00 – 2:00** **Lunch**	**1:00 – 2:00** **Lunch**
2:00 – 4:30 **Session 2** 1. **Name of the Expert :** *Dr. Mehul Raval* 2. **Designation:** *Professor* 3. **Organization:** *Ahmedabad University* 4. **Experience in Years:** *27 Years* 5. **Topic to be taught:** *Role of Multiomics in Overall Survival Days Prediction in Glioblastoma*	**2:00 – 4:30** **Session 4** 1. **Name of the Expert :** *Dr. Priyank Thakkar* 2. **Designation:** *Associate Professor* 3. **Organization:** *Nirma University, Ahmedabad* 4. **Experience in Years:** *23 Years* 5. **Topic to be taught:** *Medical Image Segmentation using Deep Neural Networks for Improved Disease Diagnosis*	**2:00 – 4:30** **Session 6** 1. **Name of the Expert :** *Dr. Padmaja Joshi* 2. **Designation :** *Senior Director* 3. **Organization:** *C-DAC, Mumbai* 4. **Experience in Years:** 32 Years 5. **Topic to be taught:** *A coupled AI-Blockchain for Electronic Health Records (EHRs) management*	**2:00 – 4:30** **Session 8** 1. **Name of the Expert :** *Mr. Amar Banerjee* 2. **Designation :** *Scientist* 3. **Organization:** *Philips Healthcare Innovation Center, Pune* 4. **Experience in Years:** *12 Years* 5. **Topic to be taught:** *Role of Explainable AI in Medical Industry*	**2:00 – 4:30** **Session9** 1. **Name of the Expert:** *Dr. Anubha Gupta* 2. **Designation :** *Professor* 3. **Organization:** *IIIT Delhi* 4. **Experience in Years:** *31 Years* 5. **Topic to be taught:** *Designing a gene panel using genomic Biomarkers on Multiple Myeloma Cancer using AI*	**2:00 – 4:00** **MCQ & Reflection Journal**
4:30 – 5:30 **Hands on training on Computer Vision Python libraries** **By** **Prof. Rachana Oza**	**4:30 – 5:30** **Hands on training on Model Building Python libraries** **By** **Dr. Priyank Thakkar**	**4:30 – 5:30** **Hands on training on Visualization Python libraries** **By** **Prof. Vasundhara Uchhula**	**4:30 – 5:30** **Hands on training on Explainable AI Python libraries** **By** **Dr. Shilpa Gite**	**4:30 – 5:30** **Hands on training on Blockchain Python libraries** **By** **Dr. Dhruti Sharma**	**4:00 – 5:00** **Valedictory Remarks**

List of Speakers

Prof. (Dr.) Mayuri Mehta
Professor
Computer Engineering Department, Sarvajanik College of Engineering & Technology, Surat

Session Title: How AI and Explainable AI (XAI) are Transferring the Healthcare Industry

Prof. (Dr.) Mehul Raval
Professor
Computer Science and Engineering, Ahmedabad University, Ahmedabad

Session Title: Role of Multiomics in Overall Survival Days Prediction in Glioblastoma

Mr. Dipanjan Sarkar
Head of Community and Principal AI Scientist
Analytics Vidhya and Self-employed

Session Title: Generative AI and Large Language Models in Healthcare

Prof. (Dr.) Priyank Thakkar
Associate Professor
Computer Science & Engineering Department,
Nirma University, Ahmedabad

Session Title: Medical Image Segmentation using Deep Neural Networks for Improved Disease Diagnosis

Prof. (Dr.) Devesh C. Jinwala
Professor
Department of Computer Science & Engineering,
Sardar Vallabhbhai National Institute of Technology, Surat

Session Title: Adversarial Machine Learning in e-Health

Dr. Padmaja Joshi
Senior Director
C-DAC, Mumbai

Session Title: A coupled AI-Blockchain for Electronic Health Records (EHRs) management

Prof. (Dr.) Shilpa Gite
Associate Professor
Computer Science & Engineering, Symbiosis Institute of Technology, Pune

Session Title: Explainable AI in Healthcare: Methods, Forms and Frameworks

Mr. Amar Banerjee
Scientist
Philips Healthcare Innovation Center, Pune

Session Title: Role of Explainable AI in Medical Industry

Prof. (Dr.) Anubha Gupta
Professor
Electronics and Communications Engineering,
Indraprastha Institute of Information Technology, Delhi

Session Title: Designing a gene panel using genomic Biomarkers on Multiple Myeloma Cancer using AI

Prof. Rachana Oza
Assistant Professor
Computer Engineering Department, Sarvajanik College of Engineering & Technology, Surat

Session Title: Robot-assisted Minimally Invasive Surgery using AI-based CAS Systems

List of Participants

Note: Participants highlighted in red color were absent during the FDP

Name	Email	Institute Name	Designation	Experience(years)
Mr. SONERIA HARDIK CHMPAKLAL	hcsoneria@gmail.com	SSASIT Surat	Assistant Professor	14 Year(s) 6 Month(s)
Miss BARKHA ASHOOKUMAR WADHVANI	barkha.wadhvani@gmail.com	P P Savani University	Assistant Professor	6 Year(s) 2 Month(s)
Mr. SINGH KAUSHAL VINAY	kaushal.singh@ppsu.ac.in	P P SAVANI UNIVERSITY	Faculty members of the AICTE approved institutions	3 Year(s) 6 Month(s)
Mr. Vipul S. Kania	kania_vipul@gtu.edu.in	Shree Swami Atmanand Saraswati Institute of Technology, Surat	Assistant Professor	16 Year(s) 00 Month(s)
Miss Vibha Amrutlal Patel	vibhapatelddu@gmail.com	Chhotubhai Gopalbhai Patel Institute of Technology, Uka Tarsadia University, Bardoli	Assistant Professor	10 Year(s) 10 Month(s)
Dr. Ankit Kharwar	ankit.kharwar@scet.ac.in	SCET	Faculty members of the AICTE approved institutions	12 Year(s) 5 Month(s)
Mr. Bhavesh Ishvarlal Patel	bhavesh.patel@scet.ac.in	Sarvajanik College of Engineering and Technology	Assistant Professor	15
Mr. Jayesh Ganpatbhai Chaudhary	jayesh.chaudhary@scet.ac.in	Sarvajanik College of Engineering and Technology , Surat	Assistant Professor	9
Mr. Jaydeep Jyotindra Gheewala	jaydeep.gheewala@scet.ac.in	Sarvajanik College of Engineering and Technology	Assistant Professor	14 Year(s) 0 Month(s)
Mr. HIREN HARIBHAI VAVAIYA	hiren.vavaiya@scet.ac.in	sarvajanik college of engineering and Technology	Assistant Professor	20 Year(s) 10 Month(s)
Miss Hiral Sanjaybhai Padhariya	hiralpadhariya91@gmail.com	Veer Narmad South Gujarat University	Teaching Assistant and Research Scholar	2 Year(s) 3 Month(s)

Dr. Bintu Kadhiwala	bintu.kadhiwala@scet.ac.in	Sarvajanik Collge of Engineering and Technology, Surat	Assistant Professor	20 Year(s) 1 Month(s)
Mrs. Priyanka Nikunj Parmar	priyanka_pariyawala@yahoo.com	Bhagwan Mahavir College of Computer application	Assistant Professor	7 Year(s) 2 Month(s)
Miss Himani Parekh	himani.parekh@ckpcet.ac.in	C. K. Pithawala College of Engineering & Technology	Assistant Professor	10 Year(s) 3 Month(s)
Mrs. Disha Nimeshkumar Chavda	dishabilimoria@gmail.com	C.K. Pithawala College of Engineering & Technolgy	Assistant Professor	9 Year(s) 0 Month(s)
Mr. Saurabh Shantilal Tandel	saurabh.tandel@ckpcet.ac.in	C K Pithawala College of Engineering and Technology, Surat	Assistant Professor	18 Year(s) 1 Month(s)
Mrs. Stephanie Tamakuwala	stephanie.noronha@ckpcet.ac.in	C.K.PITHAWALA COLLEGE OF ENGINEERING AND TECHNOLOGY	Assistant Professor	2 Year(s) 1 Month(s)
Mr. Chetan Kishorbhai Solanki	chetan.solanki@ckpcet.ac.in	C.K.Pithawala College of Engg. and Tech.	Assistant Professor	16 Year(s) 6 Month(s)
Mr. PATEL MITULKUMAR HEMANTBHAI	mitul.patel@scet.ac.in	Sarvajanik College of Engineering & Technology,Surat	Faculty members of the AICTE approved institutions	9 Year(s) 9 Month(s)
Mrs. Vishruti Desai	vishruti.desai@ckpcet.ac.in	C K Pithawala College of Engineering and Technology	Assistant Professor	17 Year(s) 4 Month(s)
Mrs. CHAUHAN DRASTI JAYANTILAL	drastichauhan@gmail.com	Shree Swami Atmanand Saraswati Institute Of Technology	Assistant Professor	16 Year(s) 01 Month(s)
Mr. Rakesh M Katariya	raahir80@gmail.com	C K Pithawala College of Engineering and Technology	Assistant Professor	9 Year(s) 7 Month(s)
Mr. Hemilkumar Arunlal Patel	hemil.patel@ckpcet.ac.in	C K Pithawala College of Engg. & Technology, Surat	Faculty members of the AICTE approved institutions	11 Year(s) 2 Month(s)
Miss Vrutti Dipak Shah	vruttishah@gmail.com	SSASIT	Assistant Professor	15 Year(s) 0 Month(s)
Miss Monali Gandhi	gandhimonali033@gmail.com	R N G Patel Institute of Technology	Assistant Professor	11 Year(s) 9 Month(s)
Miss Nidhi Periwal	nidhi.periwal1811@gmail.com	C K Pithawala Engg. & Tech	Assistant Professor	5 Year(s) 1 Month(s)

Miss Zinal Ganpatbhai Solanki	solankizinalg@gmail.com	Shree Swami Atmanand Saraswati Institute of Technology	Assistant Professor	8 Year(s) 9 Month(s)
Miss Mirani Hemangee Bharatbhai	hemangeerocks@gmail.com	Shree Swami atmanand saraswati institute of technology surat	Assistant Professor	3 Year(s) 0 Month(s)
Mrs. Krupa Patel	krupa.3112@gmail.com	BMCCA	Faculty members of the AICTE approved institutions	2 Year(s) 10 Month(s)
Mrs. Ketki Chintankumar Pathak	ketki.joshi@scet.ac.in	Sarvajanik College of Engineering and Technology	Assistant Professor	18
Dr. Tejal Arunbhai Dave	tejal.dave@scet.ac.in	Sarvajanik Collge of Engineering and Technology , Surat	Assistant Professor	22 Year(s) 05 Month(s)
Miss PATEL NIDHI ARVINDKUMAR	nidhi.patel000051@gmail.com	SSASIT	Assistant Professor	3 Year(s) 5 Month(s)
Mr. Taralkumar Amrutlal Patel	taralpatel.tp@gmail.com	pacific school of engineering	Faculty members of the AICTE approved institutions	5 Year(s) 3 Month(s)
Mr. Hardik Mukeshbhai Patel	hardik.pse@gmail.com	Pacific School of Engineering, Surat	Faculty members of the AICTE approved institutions	5 Year(s) 0 Month(s)
Mr. Ankit Patel	ankit.patel@scet.ac.in	Sarvajanik College of Engineering and Technology	Assistant Professor	11 Year(s) 00 Month(s)
Miss Palak Desai	palak.desai.275@gmail.com	Sarvajanik College of Engineering and Technology	Assistant Professor	12 Year(s) 0 Month(s)
Mr. Purvaj Piyush Vaidya	purvajvaidya@gmail.com	R. N. G. Patel Institute of Technology	Assistant Professor	1 Year(s) 2 Month(s)
Miss Pranali Hasit Bhatt	pranali8bhatt@gmail.com	R. N. G. Patel Institute of Technology	Assistant Professor	0 Year(s) 9 Month(s)
Miss Uzmabanu MohammedAmin Shekh	umshekh@rngpit.ac.in	R.N.G. Patel Institute of Technlogy	Assistant Professor	9 Year(s) 1 Month(s)

દિવ્ય ભાસ્કર **સુરત-સિટી ભાસ્કર** 30-11-2024

દક્ષિણ ગુજરાતની કોલેજના સભ્યો હાજર રહ્યા
સ્કેટ ખાતે AI સેક્ટરમાં રહેલી તકો વિશે સેમિનારનું આયોજન કરાયું
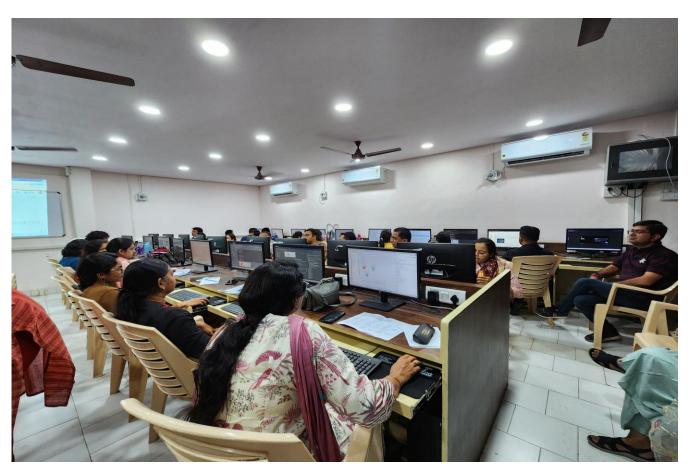

સિટી રિપોર્ટર . સુરત

સાર્વજનિક કોલેજ ઓફ એન્જિનિયરિંગ એન્ડ ટેક્નોલોજીના કોમ્પ્યુટર એન્જિનિયરિંગ અને ઈન્ફર્મેશન ટેક્નોલોજીના વિભાગોએ 25થી 30 નવેમ્બર 2024 દરમિયાન એઆઈ અને હેલ્થકેરમાં સમજાવી શકાય તેવા 'એઆઈઃ વર્તમાન પ્રવાહો અને ભાવિ સંશોધનની તકો' પર એક અઠવાડિયાના ફેકલ્ટી ડેવલપમેન્ટ પ્રોગ્રામનું આયોજન કરવામાં આવ્યું છે. જેમાં દક્ષિણ ગુજરાતની વિવિધ એન્જિનિયરિંગ સંસ્થાઓ આ કાર્યક્રમમાં હાજરી આપી રહી છે. આ કાર્યક્રમના વિવિધ સત્રો ઉદ્યોગ અને શૈક્ષણિક ક્ષેત્રના પ્રતિષ્ઠિત વક્તાઓ દ્વારા ચલાવવામાં આવે છે. જેમાં પાર્ટીસિપન્ટ્સ શીખી રહ્યા છે કે કેવી રીતે AI અને સમજાવી શકાય તેવા AI હેલ્થ સેક્ટર ઉદ્યોગને સ્વચાલિત કાર્યો, જેમ કે રોગ નિદાન, દવાની શોધ, દવા વ્યવસ્થાપન, રોબોટ-આસિસ્ટેડ સર્જરી વગેરેમાં પરિવર્તન લાવે છે. AI એ ખરેખર આરોગ્ય સંભાળના વિવિધ ક્ષેત્રોમાં પ્રગતિ કરી છે.

Photographs

Summary of the Event

The Faculty Development Program (FDP) was formally inaugurated on 25th Nov 2025 at 9.00 am. The participants were welcomed and addressed by the coordinators Prof. Mayuri Mehta and Prof. Dhruti Sharma sharing with them the guidelines and evaluation criteria of the FDP. The major objectives of the FDP were…

➢ To introduce and provide conceptual understanding of uses of AI in various spheres of healthcare such as disease diagnosis, genetics and genomics, medical imaging, robotic surgery, privacy persevering of patient data and bioinformatics.
➢ To make participants familiar with recent advancements in healthcare domain discussing AI-powered healthcare solutions.
➢ To explain participants how Explainable AI is useful to win the trust of medical professionals and patients.
➢ To make participants acquainted with challenges and future research possibilities in healthcare using AI and Explainable AI.

The insightful discussion during the FDP had truly inspired the fellow participants and served as a catalyst for positive change. Knowing about the various applications areas of AI and explainable AI in healthcare such as microbiological analysis, discovery of drug, disease diagnosis, genomics and proteomics, medical imaging and bioinformatics, participants were greatly motivated to contribute in the field of healthcare. Various hands-on sessions educated participants on several python libraries used specifically to implement healthcare solutions using AI and explainable AI. The participants also got insights on challenges and enormous future opportunities in various spheres of healthcare. The entire FDP was conducted in a very light and witty manner. This FDP will create a positive and constructive impact on each participant.

We extend our sincere gratitude to AICTE ATAL for sanctioning our proposal and giving us an opportunity to conduct this FDP. We are also thankful to our Sarvajanik Education Society and honorable principal Dr. Hiren Patel for granting us permission to organize this FDP. His constant support and guidance inspire us to organize such enlightening events. We are also thankful to HODs of the Department of Computer Engineering and the Department of Information Technology for encouragement and prompt support always. We extend our earnest gratitude to all the speakers for accepting our invitation and sparing their valuable time to be with us for the FDP. Sincere thanks to all the faculty and student volunteers, lab assistants and lab attendants for making necessary arrangements for this FDP. Thanks to all staff members of Computer Engineering and Information Technology departments for extending their help in all the possible ways whenever required. Last but not the least, we are very thankful to all the participants for their active presence during the sessions.