
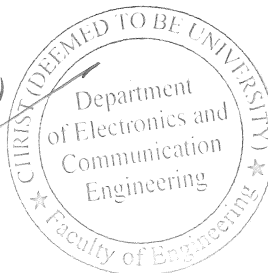


**CHRIST**  
DEEMED TO BE UNIVERSITY  
BANGALORE · INDIA

**Faculty Of Engineering**  
**Department of Electronics & Communication Engineering**

**REPORT ON DEPARTMENT EVENTS**

Academic year & Semester	2019, Odd
Name of the Department	ECE
PoC Faculty Member for clarifications (write email ID & mobile number for contact)	Prof. Delson T R <a href="mailto:delson.tr@christuniversity.in">delson.tr@christuniversity.in</a> 7760327703
<b>Details of the Event</b>	
Name of Event	<b>Matlab and Simulink - CoreEL</b>
Description of the Event (seminar/workshop/guest lecture/hands on practice/Industrial Visit)	Workshop - Industry Oriented
Address & contact details of Resource Persons/Speakers if any (provide email ID & mobile number of all the speakers)	<b>CoreEL Technolgies and CDI, IOC Venture</b>
No. of Days event held	<b>Two</b>
Date(s) and Duration	Date: 16 & 17 Dec 2019      Time: 9:00 am to 4:00 pm
Any amount spent for the event ?	Nil
<b>Details of participants attended the event</b>	
Number of guests from outside university	Nil
Students & faculty members from the department	150
Students & faculty members from Faculty of Engineering (other depts.)	-
Total Participants	150
Is Attendance list enclosed? If no, specify the reason	Yes

#### 4. Workshop on Matlab and Simulink

Dated: 16 and 17 Dec 2019

##### Schedule

16 Dec 2019 –Matlab and Simulink in DSP and Image Processing

17 Dec 2019 – Matlab and Simulink in Machine Learning and Deep Learning

##### Report

CoreEL Technologies, partner of Mathworks organized two days hands on session on toolbox of Matlab and Simulink with an emphasize On DSP, Image processing, Machine learning and deep learning. Hands on training provided in these four areas. This two days' workshop conducted in connection with CDI (Center for Digital Innovation), CHRIST University. A batch of students in ECE branch participated in this two day workshop and get enriched the skill set in Robotics Prototype development.

Workshop mainly focused on Image processing techniques and an introduction to machine learning.

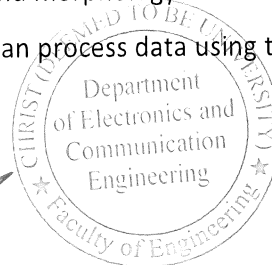
Machine learning is a data analytics technique that teaches computers to do what comes naturally to humans and animals: learn from experience. Machine learning algorithms use computational methods to “learn” information directly from data without relying on a predetermined equation as a model. The algorithms adaptively improve their performance as the number of samples available for learning increases.

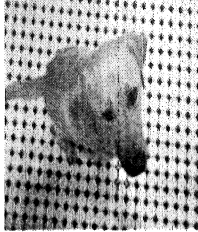







Augment image data to simulate variations in the image acquisition. For example, the most common type of image augmentation operations are geometric transformations such as rotation and translation, which simulate variations in the camera orientation with respect to the scene. Color jitter simulates variations of lighting conditions and color in the scene. Artificial noise simulates distortions caused by the electrical fluctuations in the sensor and analog-to-digital conversion errors. Blur simulates an out-of-focus lens or movement of the camera with respect to the scene.

Common image preprocessing operations include noise removal, edge-preserving smoothing, color space conversion, contrast enhancement, and morphology.

If you have Image Processing Toolbox, then you can process data using these operations as well as any other functionality in the toolbox.

*R. Vi*



Processing Type	Description	Sample Functions	Sample Output
Resize images	Resize images by a fixed scaling factor or to a target size	<ul style="list-style-type: none"> <li>• <code>imresize</code> (Image Processing Toolbox), <code>imresize2</code> (Image Processing Toolbox)</li> </ul>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Original Image</p>  </div> <div style="text-align: center;"> <p>Resized Image</p>  </div> </div>
Warp images	Apply random reflection, rotation, scale, shear, and translation to images	<ul style="list-style-type: none"> <li>• <code>randomAffine2d</code> (Image Processing Toolbox), <code>randomAffine3d</code> (Image Processing Toolbox)</li> </ul>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Original</p>  </div> <div style="text-align: center;"> <p>Reflection</p>  </div> <div style="text-align: center;"> <p>Rotation</p>  </div> <div style="text-align: center;"> <p>Scale</p>  </div> </div>
Crop images	Crop an image to a target size from the center or a random position	<ul style="list-style-type: none"> <li>• <code>centerCropWindow2d</code> (Image Processing Toolbox), <code>centerCropWindow3d</code> (Image Processing Toolbox)</li> <li>• <code>randomWindow2d</code> (Image Processing Toolbox), <code>randomCropWindow3d</code> (Image Processing Toolbox)</li> </ul>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Center Crop</p>  </div> <div style="text-align: center;"> <p>Random Crop</p>  </div> </div>

Some of the image processing techniques like segmentation and detection discussed. New methods of cropping images and warping images also exhibited.




## DAY 2

Time	Schedule
10:00 – 10:45	<b>Machine Learning Using Matlab</b> <ul style="list-style-type: none"><li>• Overview of Machine Learning</li><li>• Classification Workflow</li><li>• Importing and preprocessing data</li></ul>
10:45 – 11:00	<b>Short Break</b>
11:00 – 13:00	<b>Machine Learning using MATLAB</b> <ul style="list-style-type: none"><li>• Engineering Features</li><li>• Classification Models</li><li>• Regression Methods</li></ul>
13:00 – 14:00	<b>Lunch Break</b>
14:00 – 16:00	<b>Deep Learning using MATLAB</b> <ul style="list-style-type: none"><li>• Deep Learning for image recognition</li><li>• Using Pre-trained networks</li><li>• Managing collections of image data</li><li>• Performing Transfer Learning</li></ul>
16:00 – 16:30	<b>Queries</b>

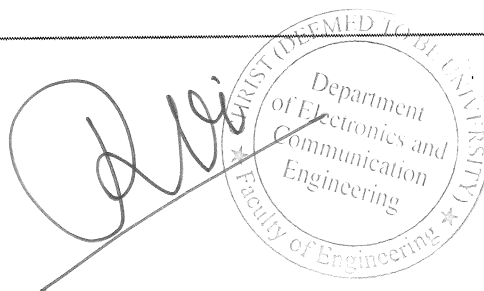




## Agenda

### DAY 1

Time	Schedule
10:00 – 10:15	About CoreEL & MathWorks
10:15 – 10:45	<p><b>Understanding R2019b Version of MATLAB &amp; Simulink</b></p> <ul style="list-style-type: none"><li>• R2019b interface</li><li>• MathWorks Products overview</li><li>• Programming in MATLAB</li><li>• Data Analysis &amp; Visualization</li><li>• Numerical Computations with MATLAB</li></ul>
10:45 – 11:00	Short Break
11:00 – 13:00	<p><b>Applications of MATLAB &amp; Simulink in Digital Signal Processing</b></p> <ul style="list-style-type: none"><li>• Signal Processing toolbox</li><li>• DSP System Toolbox</li></ul>
13:00 – 14:00	Lunch Break
14:00 – 16:00	<p><b>Applications of MATLAB &amp; Simulink in Image Processing</b></p> <ul style="list-style-type: none"><li>• Image Processing Toolbox</li><li>• Image Acquisition toolbox</li></ul>
16:00 – 16:30	Queries



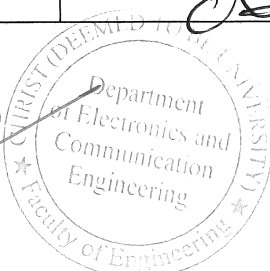
## Matlab and Simulink Workshop

### Attendance List

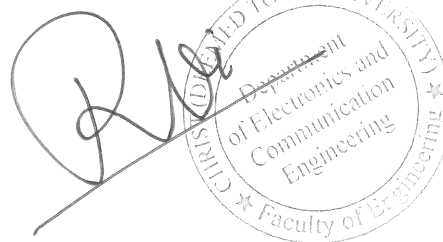
16 and 17 Dec 2019

SL No	Register Number	Name	PRESENT/ABSENT
1	1660114	SOWMYA SREENIVASAN	Ganga
2	1660370	RUDRAKSH MISHRA	Rudraksh
3	1660486	R ARJUN	Arjun
4	1660601	AJAY RAMAKRISHNA MENON	Ajay
5	1660603	BRAHM DEV TIWARI	Brahm Dev
6	1660606	ISAC S KULAKUDY	Isac
7	1660607	K ABISHEK CHANDRAN	Ac
8	1660608	K KARTHIK	Karthik
9	1660610	LOURDHU AKHIL KANNA	Lk
10	1660611	M SIBI MANUSH	Sibi
11	1660612	MANIK RAJ	Manik
12	1660613	MICHENAMETLA MEGHA SHYAM	Megha
13	1660614	MINTO MATHEW K J	Minto
14	1660615	PRITHVI RAJ MACHA	Prithvi
15	1660617	REEVE IGNATIUS SAVIO LOBO	Reeve
16	1660621	STEVE STEPHEN PONISAKE	Steve
17	1660622	ANGELA ANISHA	Angela
18	1660623	ANJANA K S	Anjana
19	1660624	CLARINE RENIE DELILAH J	Clarine
20	1660625	JUSTEENA THOMAS	Justeena
21	1660627	NIKITA NAYAR	Nikita
22	1660629	POOJITHA.M	Poojitha
23	1660632	ROSE ANTONY	Rose
24	1660633	RUTH SANDRA H	Ruth
25	1660634	Y.CHAITRI GOVARDHANA RAO	Chaitri
26	1660636	KARTHIK E	Karthik
27	1660637	ROSHIN CHERIAN	Roshin
28	1660640	FARHEEN ZUBAIR	Farheen
29	1660641	DHRUPAD U	Dhrupad
30	1660642	GEORGE F VADAKUMCHERY	George
31	1660643	VIGNESH N H	Vignesh
32	1660644	SHAARU D A	Shaaru
33	1660645	YALLAREDDYGARI MANOJKUMAR REDDY	Manoj
34	1660646	VAIBHAV P THOMAS	Vaibhav
35	1660647	P AMAR	Amar

*(Handwritten Signature)*



36	1660648	SANGEERTH VINOD	Sangeerth
37	1660649	PRIYANKA BISWAS	Priyanka
38	1660650	ASHISH PRIYADERSHY	Ashish
39	1660651	NANDITA NAIR	Nandita
40	1660652	MALLAVAJJALA SIDDARTHA ATHREYA	Mallavajjala
41	1660653	JERRIPOTHULA SAJEETH	Sajeeth
42	1660654	MAYOOGH GIRISH	Mayoogh
43	1660655	UTSAV DIHINGIA	Utsav
44	1660656	PROTTUSH DUTTA	Prottush
45	1661014	ATHINA ANN THOMAS	Athina
46	1760308	ALWIN C VARGHESE	Alwin
47	1760453	MEKA KUMAR VIGNESWAR REDDY	Meka
48	1760601	ABIN CHALSON	Abin
49	1760603	ALDRIN LOUIS FIGURADO	Aldrin
50	1760604	ANISH T CYRIAC	Anish
51	1760605	ARVIND R	Arvind
52	1760606	ASHISH G NAIR	Ashish
54	1760607	B RISHITH RAO	B Rishith
55	1760608	BENSON THOMAS	Benson
56	1760613	MACHERLA PRAJWAL	Macherla
57	1760614	MANDLE SANDEEP REDDY	Mandle
58	1760615	MOPURI AKHIL KUMAR REDDDY	Mopuri
59	1760618	RAKUL A V	Rakul
60	1760622	ANAKHA ELIZABATH GEORGE	Anakha
61	1760623	ANITA JOSE	Anita
62	1760625	KELLY MARTIN	Kelly
63	1760627	ROSE RAJAN	Rose
64	1760628	SAI RAKSHITHA	Sai
65	1760630	SWETHA SUNITH	Swetha
66	1760631	G R BHARATH	G R Bharath
67	1760632	NIKITA ELIZABETH JOSEPH	Nikita
68	1760633	JONNALA VENKATA VISHNU	Jonnala
69	1760634	KOVVURU HEMANTH CHARAN REDDY	Kovvuru
70	1760636	PEDDAKOTLA SANJAYDATTA	Peddakotla
71	1760637	POTU HARSHIT	Potu
72	1760639	KUSUMA B	Kusuma
73	1760640	MARIYA SNEHA	Mariya
74	1760642	MOGALLURI SRIKANTH	Mogalluri
75	1760643	NANDIMANDALAM NAGENDRA SAI	Nandimandalam



76	1760644	CHRISTINA T J	<i>Christina T J</i>
77	1760645	GUNDLAMADUGU MADHUKIRAN	<i>M.A.</i>
78	1760646	LOMADA SAI PRASAD REDDY	
79	1760647	KANEKAL NUZHATH SAMREEN	<i>Samreen</i>
80	1760648	VEDIKA VINITHA RAJ	<i>Vedika Raj</i>
81	1760649	ABHISHEK KUMAR	
82	1760651	AMAL J DEV	<i>Amal J Dev</i>
83	1760652	ARCHIT THAKURGOTA	<i>Archit</i>
84	1760654	CHITTIPROLU AAKANKSH	
85	1760655	KETHIREDDY ROHITH KUMAR REDDY	<i>Kethireddy</i>
86	1760656	POLAKALA DINESH REDDY	
87	1760659	A.HARIRAJ	<i>A. Hariraj</i>
88	1760660	JAYAM LIKITHA	<i>Likitha</i>
89	1760661	ANNAVAJJALA ABHIRAM SAI	
90	1760662	ANTONY JOSEPH T	<i>Antony</i>
91	1760663	MOHD ZAID	<i>Mohd Zaid</i>
92	1760664	NARAYANA PADMANABHAM TEJA GANESH	<i>Teja</i>
93	1760670	AJAY S	<i>Ajay S</i>
94	1760602	AKHIL M VARKEY	<i>Akhil</i>
95	1760609	DEEPAK KANNAN	<i>Deepak</i>
96	1760610	DION VARGHESE PRAVEEN	
97	1760619	RONIE MARIA MARCELO S	<i>Ronie</i>
98	1760621	A S DEVI DHARSHINI	<i>A S Devi</i>
99	1760629	SUMI SEKHA	<i>Sumi</i>
100	1760650	AKHIL BENNY	<i>Akhil Benny</i>
101	1760653	BASAPPA JAMPAPURAM RAJITH	<i>Rajith</i>
102	1760673	ANTHAPU UMA DEVI	<i>Anthapu</i>
103	1760617	POLAMARASETTY SUSHMANTH	
104	1760620	SHASHANK RAWAT	<i>Shashank</i>
105	1660601	AJAY RAMAKRISHNA MENON	<i>Ajay Ram</i>
106	1760652	ARCHIT THAKURGOTA	<i>Archit</i>
107	1860602	EDWIN ABRAHAM THOMAS	<i>Edwin</i>
108	1860603	EUGENE ANTONY BABU	<i>Eugene</i>
109	1860604	JUJJAVARAPU RAJ MOULI	<i>Raj Mouli</i>
110	1860605	KANCHAM ASHISH REDDY	
111	1860606	KANUMALLI BHARATH CHANDRA	<i>Bharath</i>
112	1860607	KHODEGADE MOHAMMAD TOUKEER	<i>Mohd Toukeer</i>
113	1860608	MELVIN PETER CHEERAN	<i>Melvin</i>
114	1860609	MUDUNURI YASWANTH VARMA	
115	1860610	NAMITH N	<i>Namith</i>

*R. J.*

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 Department of Electronics and Communication Engineering  
 Faculty of Engineering

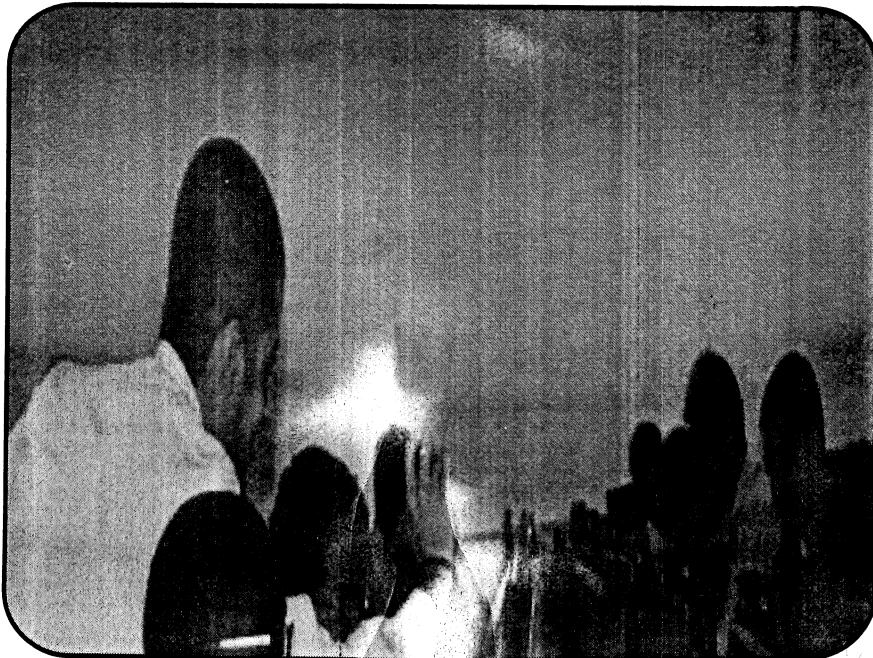
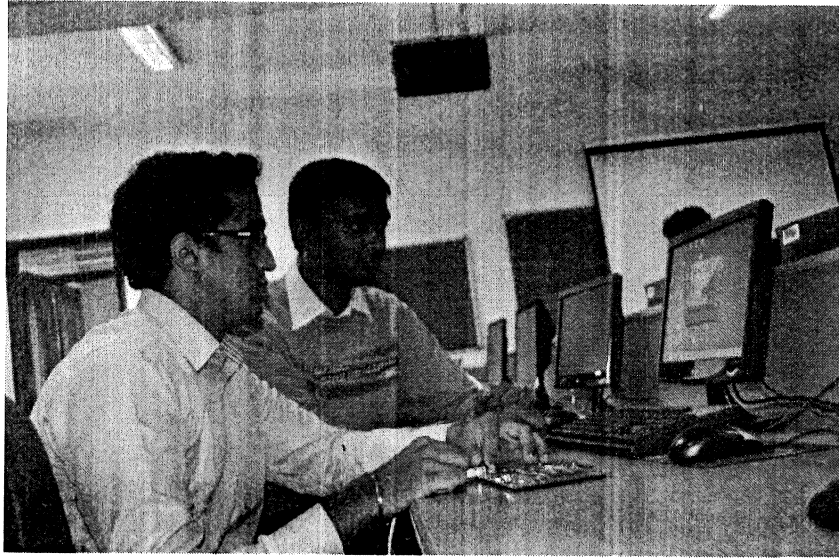


116	1860611	NANDYALA VEERA MEGHA CHANDRA REDDY	Nandyala
117	1860613	NEERAJ PUPPALA	Neeraj
118	1860614	NIRANJAN.S	Niranjan
119	1860617	SEGU VENKATA SAI PAVAN KUMAR	Sai Pavan
120	1860618	TAMATAM VENKATA SAI PRAVEEN REDDY	Tamatam
121	1860619	TEJAS JAYAN	Tejas
123	1860621	VISHNU AJAY	Vishnu
124	1860623	CHESEA AURELIA	Chelsea
125	1860625	GADDAM SAI VENNELA	Gaddam
126	1860626	GLADIS P SAJI	Gladi
127	1860627	HALMANDGE AISHWARYA BHIMASHANKAR	Aishwarya
128	1860628	HARINI N	Harini
129	1860629	LAVANYA K	Lavanya
130	1860630	SAI DHIKSHITA BHANDARU	Sai Dhikshita
131	1860631	AJAY KODIGANDLA	Ajay
132	1860633	BHAVANA P	Bhavana
133	1860634	SHARON JOSE	Sharon
134	1860635	RAGHUBIR	Raghubir
135	1860636	GUMMANUR VIVEK	Gummanur
136	1860637	M DHARANEESH	M Dharaneesh
137	1860639	ALLE NITHISH REDDY	Alle Nithish
138	1860640	KETHAMREDDY NANDI VARDHAN REDDY	Kethamreddy
139	1860641	PALLAPU YOSHNIHA SONJA	Pallapu
140	1860642	MIRUTHULA J	Miruthula
141	1860643	BANDI SUPRIYA	Bandi
142	1860644	ARNOLD ROY NAZARETH	Arnold
143	1860645	BANKA TEJA	Banka
144	1860646	CALEB BHASKAR	Caleb
145	1860647	CHILAKALA LAKSHMI GURU RAGHAVENDRA SAGAR	Chilakala
146	1860648	HARSH WARDHAN TEWARI	Harsh
147	1860649	NAGULAPATI SUDEEP REDDY	Nagulapati
148	1860650	PRATIK KRISHNA PORTE	Pratik
149	1860651	S.KANISHKQ	S Kanishk
150	1860652	SIDDAVATAM JAYA BHARATH REDDY	Siddavatam

Ravi

Department of Electronics and Communication Engineering  
Faculty of Engineering

Event Photo



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## About CHRIST

Christ University was born out of the educational vision of St Kuriakose Elias Chavara, an educationalist and social reformer of the nineteenth century in South India. He founded the first Catholic indigenous congregation, Carmelites of Mary Immaculate (CMI), in 1831 which administers Christ University. Established in 1969 as Christ College, it undertook path breaking initiatives in Indian higher education with the introduction of innovative and modern curricula, insistence on academic discipline, imparting of Holistic Education and adoption of global higher education practices with the support of creative and dedicated staff. The University Grants Commission (UGC) of India conferred Autonomy to Christ College in 2004 and identified it as an Institution with Potential for Excellence in 2006. In 2008 under Section 3 of the UGC Act, 1956, the Ministry of Human Resource Development of the Government of India, declared the institution a Deemed to be University, in the name and style of Christ University. One of the first institutions in India to be accredited in 1998 by the NAAC, and subsequently in 2004 and 2016, Christ University has the top grade 'A' in the 4-point scale. The multi-disciplinary University which focuses on teaching research and service, offers Bachelors to Doctoral programmes in humanities, social sciences, science, commerce, management, engineering, education and law to over 18000 students. The campus is a living example for the harmonious multiculturalism with students from all the states of India and from around 60 different countries. Christ University publishes six peer-reviewed research journals and has published more than 300 books in Kannada and English. A promoter of sports, music and literary activities, it is a nurturing ground for creative excellence.

## Vision

CHRIST (Deemed to be university) , a premier educational institution, is an academic fraternity of individuals dedicated to the motto of 'EXCELLANCE AND SERVICE'

## Mission

CHRIST (Deemed to be university) is a nurturing ground for an individual's holistic development to make an effective contribution to the society in a dynamic environment

## Core value.

Faith in god  
Moral uprightnes  
Love of fellow beings  
Social responsibility  
Pursuit of excellence



# Workshop on MATLAB AND SIMULINK

16<sup>TH</sup> & 17<sup>TH</sup> DEC 2019

9 am - 4 pm

at Block-2 seminar hall, FoE,  
CHRIST (Deemed to be University)

Organised by

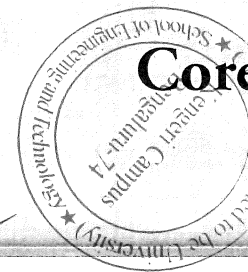
Center for Digital Innovation (CDI)

CHRIST (Deemed to be University)

&

CoreEL Technologies

Bangalore



## About the Workshop Organizer



Dr CHERUKURI RAVINDRANATH CHOWDARY

BTech, MTech, PhD

ASSOCIATE PROFESSOR

COMPUTER SCIENCE AND ENGINEERING

SCHOOL OF ENGINEERING AND TECHNOLOGY

*BANGALORE KENGERI CAMPUS*

Center for Digital Innovation

Industry Orientation Curriculum – Organizer of workshops

Special interest in the development of secured systems and designs applicable to the theory and practice of engineering science (emphasizing the usage of digital Multimedia processing, information assurance and systems technologies to solve multimedia transmission challenges currently faced by the military and industrial information processing & transmission centers

Specialties: • Image/Signal Analysis (Representation, Transmission, Recognition, Modeling and Compression)

- Information Assurance, Multimedia Security and Privacy System (Digital Multimedia Encryption & Forensics , Steganography, Watermarking, and Authentication)
- Biometric Systems
- Pattern Recognition and Machine Vision
- Statistical Multimedia Analysis

Center for Digital Innovation and IOC is Incubation – CHRIST University organizes workshps in 2019-20:



- Wiznet-lot
- Siemens-Dex
- Robotics Workshop
- Matlab and Simulink
- FPGA Design using using VIVADO

