



DAYANANDA SAGAR ACADEMY OF TECHNOLOGY & MANAGEMENT

(Affiliated to Visvesvaraya Technological University, Belagavi and Approved by AICTE, New Delhi)

(6 Branches CSE, ISE, ECE, EEE, ME& CE Accredited 3 years by NBA, New Delhi)

Opp. Art of Living, Udayapura, Kanakapura Road, Bangalore- 560082



Department of Electronics and Communication Engineering

Advanced Image Processing Laboratory

Event Name	VGST funded Advanced Image Processing Laboratory
Fund Granted	20 Lakhs
Theme	To develop Signal / Image processing algorithms, SAR image change detection algorithms to monitor critical changes
Year	2019
Venue	B-307
Principal Investigator	Dr. Sumaiya MN

Vision:

To impart high quality research-oriented knowledge to students and foster advancement of education in different engineering and Scientific disciplines. DSATM has embarked on industrial research and development to support industries with new and alternate technologies and design solutions.

Objectives:

Advanced Image Processing Laboratory has been established to develop Signal / Image processing algorithms, SAR image change detection algorithms to monitor critical changes under VGST scheme of K-FIST L1 for the financial year 2018-2019. The approved grant would help to improve and strengthen the infrastructure of our institution. Thereby, achieving higher academic standards with quality research.

About the Lab:

Advanced Image Processing Lab was established on June 2021 with a vision of filling the gap between academia and industry standards between Dayananda Sagar Academy Of Technology & Management (DSATM) Bangalore. **VGST** granted 20lakhs under **scheme of K-FIST L1 for the year 2018-2019.** This Lab is dedicated to supporting engineering educators, researchers and students worldwide. One Webinar and two projects have been conducted in the field of Image Processing and computer vision using procured Instruments for first year (phase 1). Advanced Image Processing Lab consists of three workstations, Microscopic IP system-Cameras & sensors Genie D3500, MATLAB 9.5R2018 software (license for one system) Image processing Toolbox, Signal Processing, Computer Vision, Wavelet, Deep Learning and Statistics and Machine Learning Toolboxes, Camera- acA1300-60gc Basler camera, MPEG video / Audio capture card, Image acquisition chair Compute system for Image Acquisition & Analysis acA780-75gc Basler camera, Basler lens, SAR Temporal Image Database, Few looks which are listed below.

1. Computer vision: A modern approach



“Plant more Trees, Save Water, Save Electricity, Avoid Plastics, The world is in your Hands”

2. Handbook of Neural Network Signal Processing
3. The Elements of statistical Learning
4. Pattern Recognition and Machine Learning
5. Raspberry Pi computer vision
6. Digital Image Processing using MATLAB
7. Sensing agriculture from space
8. Cryptography and Network Security
9. Digital Signal Processing Tech. & App
10. Digital Image Processing

Procured Equipments Photos:



Figure 1. Image Processing Workstations



Figure 2. Image Acquisition Cameras



“Plant more Trees, Save Water, Save Electricity, Avoid Plastics, The world is in your Hands”



85mm lens



18-55 mm lens



12mm Lens

Figure 3. Various Lenses



Audio-Video Card



EN-EL 14A Batteries



Power supplies

Figure 4. Audio-Video card, Batteries and Power supply



Figure 5. SAR Dataset from NRSC, Hyderabad



“Plant more Trees, Save Water, Save Electricity, Avoid Plastics, The world is in your Hands”



Figure 6. Image Acquisition Chair



Extension Cables1



Extension Cables2



Power supply 18v

Figure 7. Extension Cables



Figure 8. Various Book set1



“Plant more Trees, Save Water, Save Electricity, Avoid Plastics, The world is in your Hands”



Figure 9. Various Book Set2Purpose:

Target People

- BE students
- Faculties
- Research Scholars

Few interesting applications of image processing are,

SAR Image classification and recognition, SAR and Satellite Image analysis, Change Detection (short / Long term), Flood Detection • SAR image Despeckling, Content based video retrieval, Human Emotional classification, Multi Camera tracking, Traffic Surveillance, Crowd density estimation, Forest / crop monitoring, Disease detection, Image classification and segmentation, Machine Learning & Deep Learning applications.

Outcome of first year

1. Set up of lab with procured equipments
2. Two Research International Publications.

Status: first year phase 1 completed successfully. **Second Year- Phase 2 is ongoing.**

Identification and addressing the GAP: Interested students and faculties can continue their research work by enlarging various datasets using procured high resolution cameras. Students worked closely to develop various algorithms with applications in order to get the experience of Software and Hardware.

Measurable outcomes: Webinars, various algorithm development projects and Dataset acquisition for students and faculties of DSATM.



“Plant more Trees, Save Water, Save Electricity, Avoid Plastics, The world is in your Hands”