



**National Institute of Technology
Arunachal Pradesh**

**WORKSHOP
ON
Advanced Image Analysis for
Machine Learning
(AIAML - 2020)**

14th to 18th September 2020

Venue



<https://meet.google.com>

Sponsored by

TEQIP – III

Technical Education Quality Improvement Programme

PATRON

Prof. Pinakeswar Mahanta
Director, NIT Arunachal Pradesh

CONVENER

Dr. Deepak Gupta
Assistant Professor

CO-ORDINATORS

- Dr. Swarnendu Kumar Chakraborty
- Dr. Rajat Subhra Goswami
- Dr. Koj Sambyo
- Dr. Subhasish Banerjee
- Dr. Manash Pratim Dutta
- Dr. Biri Arun
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SCHEDULE

Dates	9:30 AM to 11:15 AM	11:15 AM to 11:45 AM	11:45 AM to 1:30 PM
Monday (14/09/2020)	Introduction to Image Analysis and Open CV	BREAK	Image Filtering and Morphological transformation
Tuesday (15/09/2020)	Equalization-CLAHE, contours estimation		Clustering and watersheds
Wednesday (16/09/2020)	Directional Analysis - Gabor filter, HOG		Key points-BRIEF and ORB
Thursday (17/09/2020)	Global descriptor, Template Matching		Descriptor matching
Friday (18/09/2020)	Image stitching		Multi-view Geometry



Workshop on Advanced Image Analysis for Machine Learning (14th September to 18th September 2020)

Organized by

Department of Computer Science and Engineering, National Institute of Technology, Arunachal Pradesh



ABOUT THE INSTITUTE

The National Institute of Technology, Arunachal Pradesh was inaugurated on 18th August, 2010 as a member of a group of ten new NITs. These new NITs were established as centers of excellence in technical education to combat the growing need of technological professionals in India as well as in the World. The Institute has been through many trials since its establishment in 2010; but ultimately has triumphed over all challenges and is thriving today with more than 700 students on roll and many distinguished members of faculty as well as a good many numbers of competent administrative personnel. The vision is to impart quality technical education with strong underpinning of sound knowledge in the domain. Our approach is interactive, informative, innovative and quintessentially holistic. Our main goal is to produce imaginative entrepreneurs, technology leaders of the new millennium and researchers with a profound sense of humanistic and ethical values.

ABOUT ARUNACHAL

If someone is seeking to step into a world of extraordinary beauty and discover experiences found nowhere else on earth, Arunachal Pradesh is the right place to step in. The state is inhabited by 26 major tribes and over 100 sub-tribes. Over 500 varieties of orchids are found here. Arunachal Pradesh is also known as the "Land of the Rising Sun". Land of the Dawn-Lit Mountains is the sobriquet for the state & also known as the Orchid State of India or the Paradise of the Botanists. Geographically, it is the largest of the North-eastern states known as the Seven Sister States.

OBJECTIVES OF THE COURSE

This workshop introduces fundamental concepts of Image processing, OpenCV, and machine learning approaches, the objective being motivating young students and scholars to take interest in these topics and contribute to the research field. With the progress of science and technology the world is a changed place and there is no stopping. Machine learning has a quite a substantial role to play in near future. The lectures would be covering an overview of a few Image filtering, Image stitching, descriptor matching, Template matching, and machine learning algorithms, their applications and real world application level challenges. Practical exercises are also a part of the program. The goal is to make the participants obtain deep insights of Image processing for Machine learning which in turn helps them to apply it in practice or as a foundation to a deeper study in this area.

REGISTRATION

The participants can register online at <https://docs.google.com/forms/d/1Ud11QmurO8KEKcmijeSrj3PljWjU5liz113QE55IWA/edit?usp=sharing>.

Registration Fee:

Students/ Research scholars	Rs. 100/-
Institute/ College Teachers	Rs. 100/-
Delegates from industries	Rs. 500/-

The registration fee should be paid online to: "NITAP Account" payable at Axis Bank Naharlagun

A/C No: 919010005770836 (Saving)

IFSC: UTIB0000379

(kindly save the receipt or take screenshot of the payment and send a copy via email to datasciencenitap@nitap.ac.in)

PARTICIPANTS

This workshop is specifically designed for industry professional, faculty, PhD, M.Tech and B.Tech student.

RESOURCE PERSONS

Lectures will be delivered by eminent academicians from reputed institutions like IITs/NITs/CUs. A few experts may be invited from Industries and R&D laboratories.

TOPICS TO BE COVERED

- Introduction to Image Analysis and OpenCV
- Image Filtering
- Morphological transformations
- Equalization – CLAHE, Contours estimation
- Clustering and Watersheds
- Direction analysis - Gabor filters, HOG
- Keypoints - BRIEF and ORB
- Global descriptors, Template matching
- Descriptor matching
- Image stitching
- Multi-view Geometry