

AIB553 Computer Vision & Applications

Level: 5

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JAN

Synopsis:

Computer vision is a scientific field that enables computers to “see” --- understand the content of images and videos and use that information to solve real-world problems without human assistance. This course AIB553 Computer Vision & Applications aims to teach the fundamental concepts and various applications of computer vision. The topics covered include image representation, feature detection and matching, camera model, Convolutional Neural Network (CNN), image classification, face recognition, semantic segmentation and Generative Adversarial Network (GAN).

Topics:

- Introduction to computer vision
- Image formation
- Camera model
- Feature detection and matching
- Foundations of Convolutional Neural Networks (CNN)
- Deep Convolutional Models
- Image classification
- Object detection and face recognition
- Object tracking
- Image segmentation
- Generative Adversarial Network (GAN)
- Computer vision for business

Textbooks:

Computer Vision: Algorithms and Applications 2nd Richard Szeliski Springer Publishing Company
ISBN-13: 9783030343712

Learning Outcome:

- Appraise the image processing fundamentals
- Construct robust image matching and stitching
- Evaluate camera and projection models
- Critique the fundamental theory and techniques of CNN
- Formulate a CNN model to solve image classification problem
- Propose various computer vision applications for business

Assessment Strategies - Regular Semester (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	PRE-CLASS QUIZ 1	10
	PARTICIPATION 1	15
	GROUP BASED ASSIGNMENT 1	25
Overall Examinable Components	ECA	50
Total		100

*The information listed is subject to review and change.