

Abdul Mateen

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Qualification

PhD (Computer Science) in progress

- Punjab University College of Information Technology , Lahore (Punjab University). Major research areas are Computer Vision and Digital Image Processing

MS (Computer Science)

- University of Management and Technology, Lahore (UMT)

MSc (Computer Science)

- Punjab University College of Information Technology , Lahore (PUCIT)
Punjab University

Training in the Areas of Computer Vision and Digital Image Processing

Computer Vision

Topics Covered:

- 2D & 3D transformations
- Camera Models & Calibrations
- Affine Recovery, Image Warping
- Eigen Decomposition
- Edge + Corner Detection
- Recovering Homography by RANSAC
- Hough Transformation
- Motion Detection, Optical & Global Flow
- Background Subtraction, Grimpson, Bayes, PFinder

Practical Implementations:

- Applying affine transformations and Image Warping
- Camera calibration taking actual measurement on 3D cube
- Find edge using Canny edge detector, corner detection using KLT Corner detection
- Apply RANSAC to fit line model
- Perform image stitching by feature matching
- Find object using background subtraction

Digital Image Processing

Topics Covered:

- Fundamentals of Digital Signal Processing
- Elements of Visual Perception
- Image Sensing & Acquisition
- Image Sampling & Quantization
- Image Enhancement in the Spatial Domain
- Image Enhancement in the Frequency Domain
- Image Restoration
- Color Image Processing
- Image & Video Compression
- Eigen Faces
- Image Blending using Interpolation
- Image Blending using Gaussian and Laplacian Pyramids

Practical Implementations:

- Digital matting assuming some background color
- Image enhancement in spatial domain using histogram equalization & histogram matching
- Application of frequency domain using low pass & high pass filters
- Noise removal for periodic noise
- Image compression using JPEG standards
- Image Blending using Image Pyramids
- Face recognition using Eigen Faces

Advance Computer Vision (in progress)

Topics Covered:

- Recovering Rigid Structure from Motion
- Recovering Non-Rigid Structure from Motion
- Introduction to Multiple View Geometry
- Projective Transformation & Estimation

Practical Implementations:

- Implementation of recovering rigid structure from motion
- Implementation of recovering non-rigid structure from motion
- Recovering affine transformation using points meeting at line of infinity
- Recovering affine transformation using 5 perpendicular lines
- Recovering affine transformation using actual measurement

Workshops Attended

- Intensive Teachers Training Program held in LUMS under HEC
- Workshop on Fuzzy Logic held in LUMS
- Workshop on Speech Processing held in NU-Fast

Technical Skills

- **Programming Languages** Expert level skills in C++, JAVA (J2SE, J2EE), Matlab
- **Programming Tools** TextPad, JBuilder, NetBeans, Kawa
- **Databases** Ms Access, Sql Server, Oracle
- **Platform** Windows 95 / 98 / 2000 / NT / XP, Linux

Development

- **Quiz Competition Management System**

Software prepared for handling of quiz competition held in PUCIT. Application based on Client-Server architecture constructed using Java RMI technology. MsAccess is used for database management. Software is actually deployed on the event and run successfully till end of event.

Professional Experience

- **Lecturer** Punjab University College of Information
(Fall 2006 to onwards) Technology (PUCIT)
 - ❖ Taught data structure & algorithm analysis, Object oriented programming,
Programming Fundamentals

Personal Information

Date of Birth	31-Jan-1973
Nationality	Pakistani

References

Dr. Arif Mahmood (rfmahmood@gmail.com)
Dr. Mansoor Sarwar (principal@pucit.edu.pk)