

# ROHAN MUKHERJEE

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## Courses offering at Goa Institute of Management

- Statistics for Analytics
- Mathematical Models for Management Decisions
- Machine Learning
- Advanced Machine Learning

## EDUCATION

### IIT KHARAGPUR

PhD

- Specialization: Visual Information Processing and System Design
- Achievements: 2 **Patents** (Institute Sponsored) and 8 **Journals**

### IIT KHARAGPUR

Master of Science

- Concentrations: Visual Information Processing and System Design
- CGPA: **9.5/10**
- Achievements: Video codec design deployed at **ISRO**
- Publications: 7 international and national conferences

## EXPERIENCE

### Research Scientist (1.5 years)

IIT Kharagpur

- Leading the project on **Advanced Machine Learning** and **Deep Learning** applications on OCR systems
- **Developing pre-processing tool** for preparing and annotating data for deep learning methodologies
- **Managing** the integration of the **pre-processing tools and recognizers** for detecting degraded documents
- **Mentoring** under-graduate and post-graduate students in the department

### Teaching Assistantship

IIT Kharagpur

July 2013 – July 2017

- Tutored a class of more than 100 students on the principles of **Statistics** and **Machine Learning**
- Tutored more than 250 engineering faculties from various colleges during a short-term course on **Signal Processing**
- Regular departmental assistantship on computer vision lab and multimedia courses
- Communicated targeted feedback, provided effective consultation, and actively coached students to improve performance on assignments and projects

## PATENTS

- System for Motion Estimation in Video Signals for Real Time Video Processing: Filed on 20/08/2014 at Patent Office, Kolkata: Application No.:859/KOL/2014
- System for efficient VLSI architectures for adaptive motion estimation: Filed on 30/04/2015 at Patent Office, Kolkata: Application No.:484/KOL/2015

## JOURNALS

- Baishik Biswas, **Rohan Mukherjee**, Indrajit Chakrabarti, Pranab Kumar Dutta, Ajoy Kumar Ray, "A High-Speed VLSI Architecture for Motion Estimation Using Modified Adaptive Rood Pattern Search Algorithm", *Circuits, Systems, and Signal Processing*, 37(10): 4548-4567, Springer (2018).
- **Rohan Mukherjee**, Priyabrata Saha, Indrajit Chakrabarti, Pranab Kumar Dutta, Ajoy Kumar Ray, "Fast adaptive motion estimation algorithm and its efficient VLSI system for high definition videos", *Expert Systems with Applications*, 101:159-175, Elsevier (2018).
- **Rohan Mukherjee**, Baishik Biswas, Indrajit Chakrabarti, Pranab Kumar Dutta, Somnath Sengupta, Ajoy Kumar Ray, "Speed-Area Optimized VLSI Architecture of Hexagonal Search Algorithm for Motion Estimation of 512x512 Frames", *Circuits, Systems, and Signal Processing*, 36(2): 640-657, Springer (2017).
- **Rohan Mukherjee**, Baishik Biswas, Indrajit Chakrabarti, Pranab Kumar Dutta, Ajoy Kumar Ray, "Efficient VLSI Design of Adaptive Rood Pattern Search Algorithm for Motion Estimation of High Definition Videos", *Microprocessors and Microsystems*, 45:105-114, Elsevier (2016).
- **Rohan Mukherjee**, Vikrant Mahajan, Indrajit Chakrabarti, Anindya Sundar Dhar, "High Performance VLSI Design of Diamond Search Algorithm for Fast Motion Estimation", *Journal of Circuits, Systems, and Computers*, 25(9):1-16, World Scientific (2016).
- Baishik Biswas, **Rohan Mukherjee**, Priyabrata Saha, Indrajit Chakrabarti, "An Efficient VLSI Architecture of the Enhanced Three Step Search Algorithm", *Journal of The Institution of Engineers (India): Series B*, 97(3):303-309, Springer(2016).
- **Rohan Mukherjee**, Keyur Sheth, Anindya Sundar Dhar, Indrajit Chakrabarti, Somnath Sengupta, "High Performance VLSI Architecture for Three-Step Search Algorithm", *Circuits, Systems, and Signal Processing*, 34(5): 1595-1612, Springer (2015).
- Baishik Biswas, **Rohan Mukherjee**, Indrajit Chakrabarti, "Efficient Architecture of Adaptive Rood Pattern Search Technique for Fast Motion Estimation", *Microprocessors and Microsystems*, 39(3):200-209, Elsevier (2015).

## SELECTED CONFERENCE PUBLICATIONS

- **Rohan Mukherjee**, Anupam Banerjee, Avirup Maulik, Indrajit Chakrabarti, Pranab Kumar Dutta, Ajoy Kumar Ray, "An efficient VLSI design of CAVLC encoder", 2017 IEEE TENCON, Nov. 2017, Penang, Malaysia.
- Baishik Biswas, **Rohan Mukherjee**, Indrajit Chakrabarti, "Efficient VLSI Architecture for motion estimation using New Three Step Search (NTSS) algorithm", 2014 IEEE TENCON, Oct. 2014, Bangkok, Thailand.
- **Rohan Mukherjee**, Indrajit Chakrabarti, Somnath Sengupta, "FPGA Based Implementation of Intra-Prediction Based Encoding of H.264", 2014 International Conference on VLSI and Signal Processing, IIT-Kharagpur, India.
- **Rohan Mukherjee**, Vikrant Mahajan, Indrajit Chakrabarti, Somnath Sengupta, "High Performance VLSI Implementation of Context-based Adaptive Variable Length Coding (CAVLC) for H.264 Encoder", 2013 National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), Dec. 2013, IIT-Rajasthan, India.
- **Rohan Mukherjee**, Elkapelly Sandeep Kumar, Indrajit Chakrabarti, Somnath Sengupta, "VLSI Architecture of Forward and Inverse Quantization Modules of H.264 for HD Transmission", 2013 IEEE INDICON, Dec. 2013, IIT-Bombay, India.
- **Rohan Mukherjee**, Vikrant Mahajan, Indrajit Chakrabarti, Somnath Sengupta, "High Performance VLSI Implementation of CAVLC Decoder of H.264/AVC for HD Transmission", 2013 IEEE INDICON, Dec. 2013, IIT-Bombay, India.
- **Rohan Mukherjee**, Waddi. Hari Prasad, Pandrapragada Dheeraj, Indrajit Chakrabarti, Somnath Sengupta, "High Throughput Pipelined Architecture for Fast 2-D 4x4 Forward Integer Transform of H.264", 2012 IEEE National Conference on Communications, Kharagpur (NCC), Feb. 2012, IIT-Kharagpur, India.