

## ICIP 2010 Paper Review Categories

- 1: Image & Video Sensing, Modeling, and Representation
  - 1.1: Image & Video Sensing and Acquisition (SMR-SEN)
    - 1.1.1: Scanning, Sampling and quantization
    - 1.1.2: Sensor systems and distributed sensing
    - 1.1.3: Video stabilization and autofocus
    - 1.1.4: Intrinsic and extrinsic camera model estimation
    - 1.1.5: Coded aperture systems
    - 1.1.6: Omnidirectional imaging and plenoptics
  - 1.2: Statistical-Model Based Methods (SMR-SMD)
    - 1.2.1: System and image-prior modeling
    - 1.2.2: Doubly-stochastic models
    - 1.2.3: Bayesian methods
    - 1.2.4: Statistical regularization techniques
    - 1.2.5: Model selection
    - 1.2.6: Algorithms for iterative and recursive estimation
    - 1.2.7: Noise and system models
    - 1.2.8: Natural image models
  - 1.3: Structural-Model Based Methods (SMR-STM)
    - 1.3.1: Morphological models
    - 1.3.2: Graphical and tree-based models
    - 1.3.3: Semantic models
  - 1.4: Image & Video Representation (SMR-REP)
    - 1.4.1: Multi-scale and multi-orientation representation
    - 1.4.2: Geometry and texture representation
    - 1.4.3: Object based representation
    - 1.4.4: Hierarchical representation
    - 1.4.5: Sparse representation
  - 1.5: Perception and Quality Models for Images & Video (SMR-HPM)
    - 1.5.1: Human visual system modeling
    - 1.5.2: Perceptually optimized algorithms and methods
    - 1.5.3: Quality metrics and assessment tools
- 2: Image & Video Processing Techniques
  - 2.1: Linear and Nonlinear Filtering of Images & Video (TEC-PRC)
    - 2.1.1: Linear and nonlinear filtering
    - 2.1.2: Morphological filtering
    - 2.1.3: Regression techniques
  - 2.2: Partial Differential Equation Based Processing of Images & Video (TEC-PDE)
    - 2.2.1: Level set methods
    - 2.2.2: Anisotropic diffusion
  - 2.3: Multiresolution Processing of Images & Video (TEC-MRS)
    - 2.3.1: Wavelets
    - 2.3.2: Filter banks
    - 2.3.3: Scale-space
    - 2.3.4: Multigrid methods
    - 2.3.5: Hierarchical Processing

- 2.4: Restoration and Enhancement (TEC-RST)
  - 2.4.1: Contrast enhancement, deblurring, and denoising
  - 2.4.2: Multiframe image restoration
  - 2.4.3: Inpainting and image synthesis
- 2.5: Interpolation, Super-Resolution, and Mosaicing (TEC-ISR)
  - 2.5.1: Interpolation and superresolution
  - 2.5.2: Mosaicing, registration, and alignment
  - 2.5.3: Multi-image fusion
- 2.6: Formation and Reconstruction (TEC-FOR)
  - 2.6.1: Inverse methods
  - 2.6.2: Tomography and reconstruction
  - 2.6.3: Compressive sensing
- 2.7: Biomedical and biological image processing (TEC-BIP)
  - 2.7.1: Segmentation and quantitative analysis
  - 2.7.2: Biomedical image registration and fusion
  - 2.7.3: Anatomical, functional, and molecular data analysis
  - 2.7.4: Computer assisted screening and diagnosis
  - 2.7.5: Visualization of biomedical data

### 3: Image & Video Communications

- 3.1: Lossy Coding of Images & Video (COM-LOC)
  - 3.1.1: Transform coding
  - 3.1.2: Motion compensated coding
  - 3.1.3: Wavelet-based coding
  - 3.1.4: Scalable coding
  - 3.1.5: Transcoding
  - 3.1.6: Video compression standards
  - 3.1.7: Multiple description coding
  - 3.1.8: Distributed coding
  - 3.1.9: Multispectral and biomedical image compression
  - 3.1.10: Perceptual coding
- 3.2: Lossless Coding of Images & Video (COM-LLC)
  - 3.2.1: Lossless and near lossless coding
  - 3.2.2: Predictive coding
  - 3.2.3: Reversible transforms
- 3.3: Error Resilience and Channel Coding for Image & Video Systems (COM-ERC)
  - 3.3.1: Joint source/channel coding
  - 3.3.2: Error resilience and error concealment
  - 3.3.3: Video streaming
  - 3.3.4: Content adaptation
- 3.4: Imaging & Video Networks (COM-NET)
  - 3.4.1: Sensor networks
  - 3.4.2: Distributed imaging
  - 3.4.3: Networking
  - 3.4.4: Image and Video communication protocols
- 3.5: Image & Video Processing for Watermarking and Security (COM-WSE)
  - 3.5.1: Image processing for watermarking

- 3.5.2: Printing and imaging security
- 3.5.3: Image and video encryption
- 3.5.4: Forensic imaging
- 3.6: Image & Video Multimedia Communications (COM-MMC)
  - 3.6.1: Multimedia with image and video content
  - 3.6.2: Multimedia event synchronization
  - 3.6.3: Multimedia coding and transmission

#### 4: Electronic Imaging

- 4.1: Image Scanning and Capture (ELI-SDP)
  - 4.1.1: Scanners and cameras
  - 4.1.2: Imaging sensors
  - 4.1.3: High dynamic range imaging
- 4.2: Color and Multispectral Imaging (ELI-COL)
  - 4.2.1: Color Imaging
  - 4.2.2: Multispectral and hyperspectral imaging
- 4.3: Printing and Halftoning (ELI-PRT)
  - 4.3.1: Quantization and Halftoning
  - 4.3.2: Display and printing systems
  - 4.3.3: Variable data printing
  - 4.3.4: Print quality assessment
  - 4.3.5: Subpixel rendering
- 4.4: Scanned Document Analysis, Processing, and Coding (ELI-DOC)
  - 4.4.1: Page segmentation
  - 4.4.2: Text/graphics/picture classification
  - 4.4.3: Background suppression
  - 4.4.4: Neutral color detection
  - 4.4.5: Graphics vectorization
  - 4.4.6: Optical character recognition
  - 4.4.7: Document coding
  - 4.4.8: Binary image coding
  - 4.4.9: Mixed raster content coding
  - 4.4.10: Document analysis and synthesis
- 4.5: Stereoscopic and Multiview Processing and Display (ELI-STE)
  - 4.5.1: Stereo image processing
  - 4.5.2: Multiview image processing
  - 4.5.3: 3D modeling & synthesis
  - 4.5.4: Camera calibration
  - 4.5.5: Stereoscopic and Multiview and 3-D coding
  - 4.5.6: Stereoscopic and Multiview displays and systems
- 4.6: Hardware and Software Systems for Image & Video Processing (ELI-HDW)
  - 4.6.1: Special purpose hardware systems
  - 4.6.2: Hardware and software co-design
  - 4.6.3: Parallel and distributed systems

#### 5: Computational Imaging

- 5.1: Acoustic and Ultrasound Imaging (COI-AUI)

- 5.1.1: Ultrasound imaging
- 5.1.2: Acoustic imaging
- 5.2: Microscopic Imaging (COI-MCI)
  - 5.2.1: Optical, confocal, multiphoton, and nonlinear microscopy
  - 5.2.2: Electron microscopy
  - 5.2.3: Atomic force microscopy
- 5.3: Tomographic Imaging (COI-TOM)
  - 5.3.1: Computed transmission tomography (CT)
  - 5.3.2: Single photon emission computed tomography (SPECT)
  - 5.3.3: Positron emission tomography (PET)
  - 5.3.4: Optical coherence tomography (OCT)
  - 5.3.5: Diffuse optical tomography (DOT)
- 5.4: Magnetic resonance imaging (COI-MRI)
  - 5.4.1: MRI reconstruction
  - 5.4.2: MRI acquisition systems
- 5.5: Radar Imaging, Remote Sensing, and Geophysical Imaging (COI-RRG)
  - 5.5.1: Acoustic imaging
  - 5.5.2: Radar and terahertz imaging
  - 5.5.3: Synthetic aperture radar (SAR) imaging
  - 5.5.4: Inverse SAR imaging
  - 5.5.5: Astronomical imaging
  - 5.5.6: Infrared, multispectral, and hyperspectral imaging
  - 5.5.7: Geophysical and seismic imaging
- 5.6: Hardware and Software Systems for Computational Imaging (COI-HDW)
  - 5.6.1: Special purpose hardware systems
  - 5.6.2: Hardware and software co-design
  - 5.6.3: Parallel and distributed systems
- 6: Image & Video Analysis, Synthesis, and Retrieval
  - 6.1: Region, Boundary, and Shape Analysis (ARS-RBS)
    - 6.1.1: Segmentation
    - 6.1.2: Classification
    - 6.1.3: Edge and boundary detection
    - 6.1.4: Active-contour and level-set methods
    - 6.1.5: Morphological analysis methods
    - 6.1.6: Shape models and metrics
    - 6.1.7: Stochastic shape and region models
  - 6.2: Image & Video Mid Level Analysis (ARS-IVA)
    - 6.2.1: Detection, tracking, and recognition of objects
    - 6.2.2: Motion estimation and optical flow
    - 6.2.3: Shape-from-X
    - 6.2.4: Pose estimation
    - 6.2.5: Change detection
    - 6.2.6: Video surveillance
  - 6.3: Image & Video Interpretation and Understanding (ARS-IIU)
    - 6.3.1: Object recognition and classification
    - 6.3.2: Foreground/background segregation

- 6.3.3: Scene analysis
- 6.4: Image & Video Biometric Analysis (ARS-BIM)
  - 6.4.1: Fingerprint analysis
  - 6.4.2: Face and gesture recognition and tracking
  - 6.4.3: Body models and gait analysis
  - 6.4.4: Iris and retinal analysis
- 6.5: Image & Video Storage and Retrieval (ARS-SRE)
  - 6.5.1: Indexing and retrieval
  - 6.5.2: Browsing, navigation, and relevance feedback
  - 6.5.3: Metadata extraction and semantic analysis
  - 6.5.4: Video shot, scene, and event detection
  - 6.5.5: Content summarization
  - 6.5.6: Multimodal retrieval involving image and video
- 6.6: Image & Video Synthesis, Rendering, and Visualization (ARS-SRV)
  - 6.6.1: Image rendering
  - 6.6.2: Texture synthesis
  - 6.6.3: Visualization and graphic rendering
  - 6.6.4: Image and video synthesis
  - 6.6.5: Image-based representation and rendering