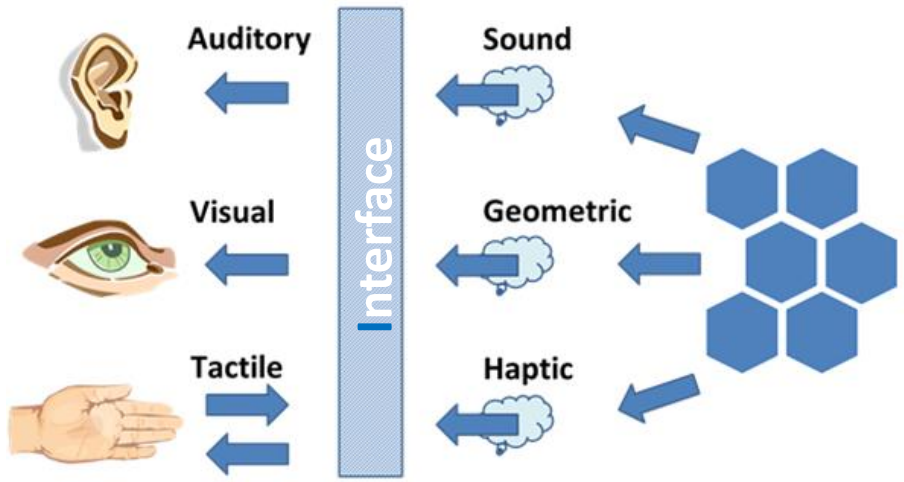
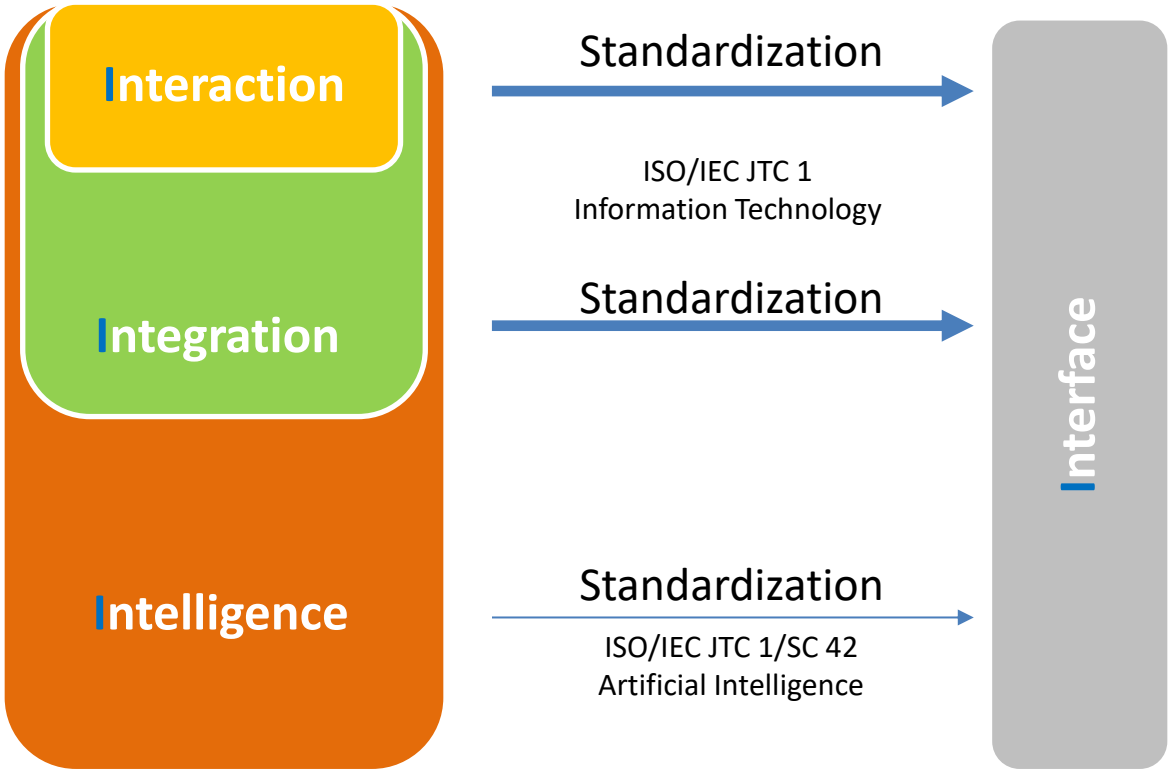
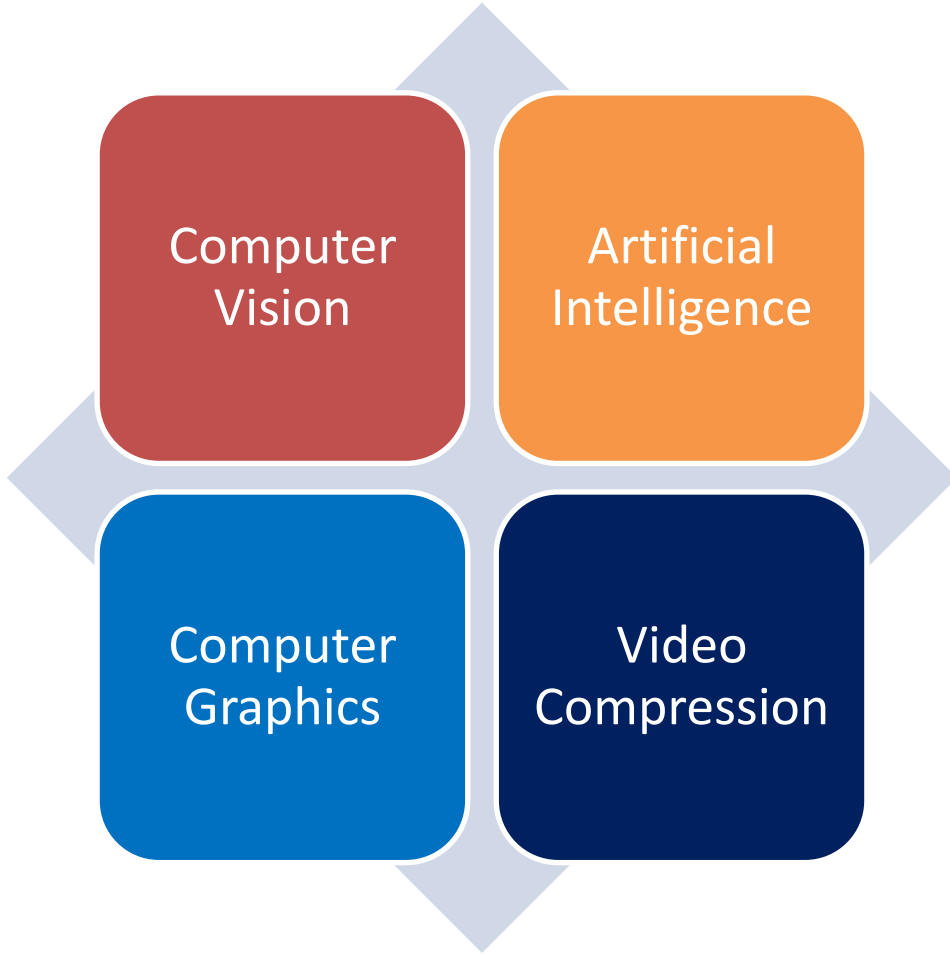
HMI Laboratory

https://hmiuet.wordpress.com







People

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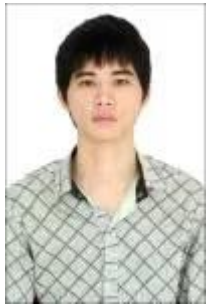


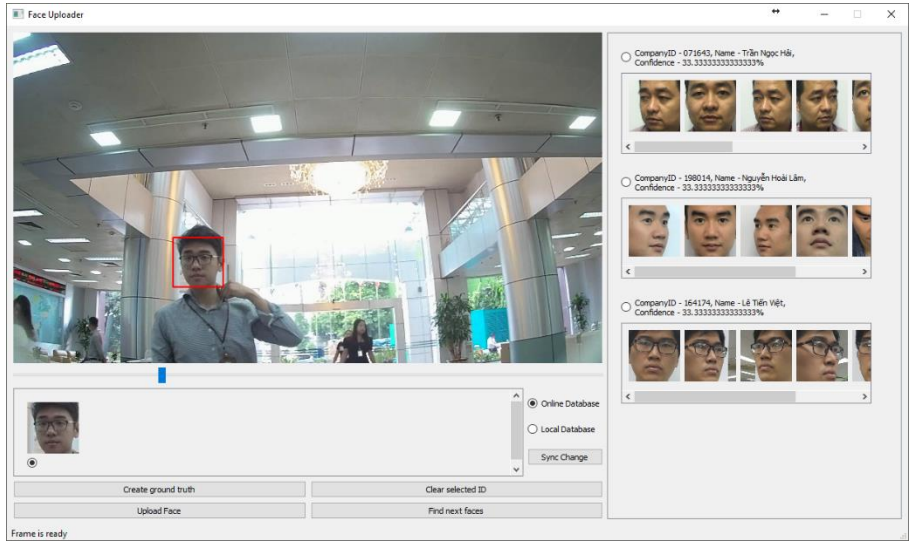
Research

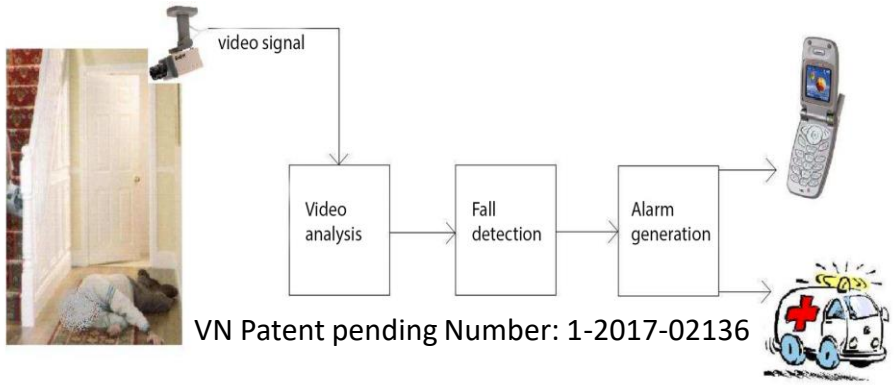
- **Image/Video coding (Ha)**
  - H.264/AVC , HEVC video coding standards
  - Video plus depth
  - Multiview Video Coding
- **Artificial intelligence (Van)**
  - Deep reinforcement learning
  - Swarm intelligence
- **Satellite Image Processing (Ha, Thanh)**
  - Forest Fire detection & monitoring
  - Air pollution detection & monitoring
- **Natural Language Processing (Son)**
  - Artificial Intelligence
  - Question Answering
  - Social Media Monitoring
- **Robotics (Son, Ha)**
  - Robot Vision
  - Robot Navigation & Localization
- **Human Machine Interaction (Duy, Chau, Duyen)**
  - Computer graphics
  - Intelligent environment
  - Spatial-temporal data mining
  - Ubiquitous Computing

Computer Vision

Smart lock

Face recognition
95% accuracy





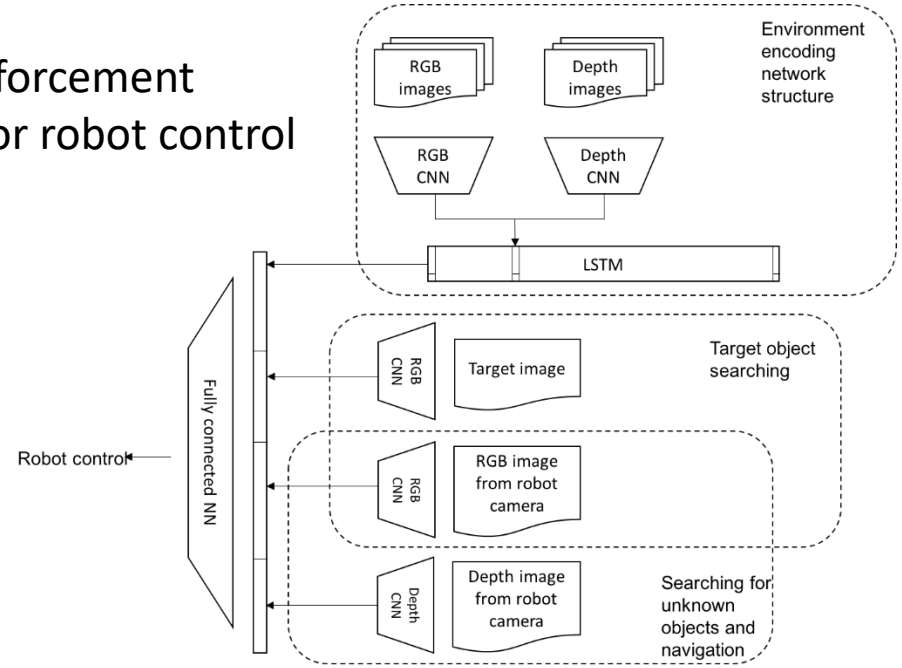
VN Patent pending Number: 1-2017-02136

SmartCam for healthcare

Fall detection
90% accuracy

Artificial Intelligence

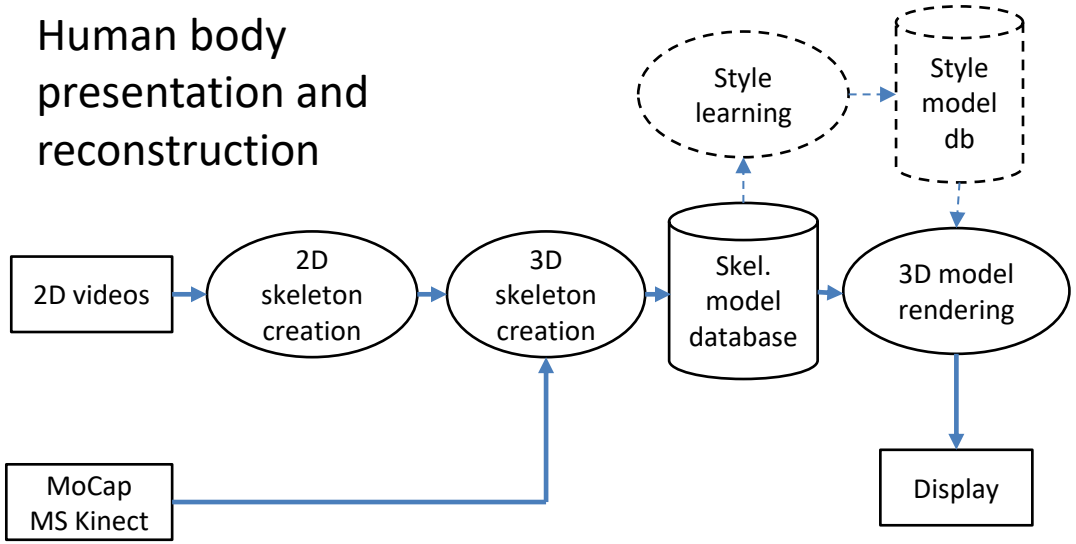
Deep reinforcement learning for robot control

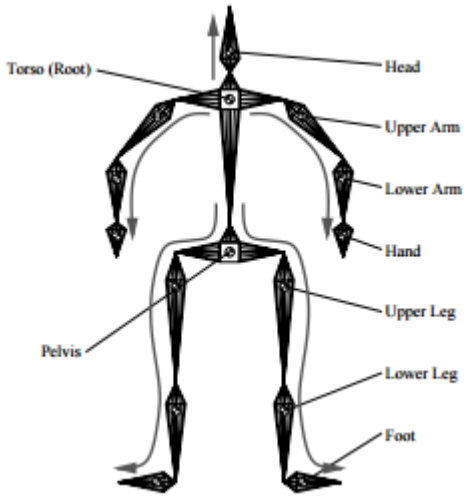


Behavioral analysis and learning for swarm robotics

Computer Graphics

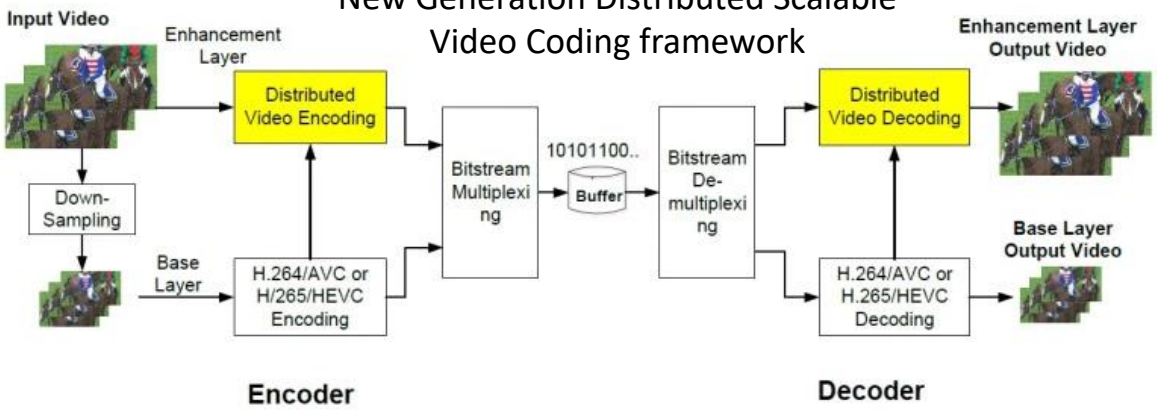
Human body presentation and reconstruction



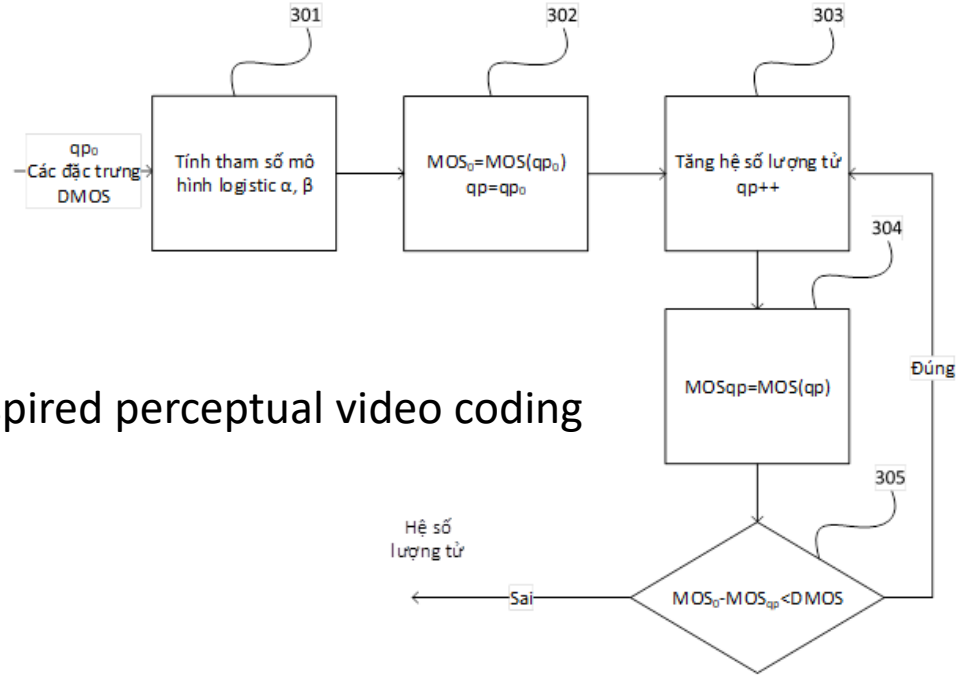


Video compression

New Generation Distributed Scalable Video Coding framework



AI inspired perceptual video coding



- HUMANS and MACHINES cooperate basically through pairs of sensories Visual-Geometric, Auditory-Sound, Tactile-Haptic.
- The levels of cooperation between HUMANS and MACHINES are in forms of Interface, Interaction, Integration, and Intelligence.
- Human Machine Interface defines how humans manipulate with machine and how information exchanged between human and machine as well as among machines through standardization process developed and published at international an national organizations (e.g. ISO, ITU, …).
- Human Machine Interaction can be described as stimulus-response which implies the Machines are just wait and do what Humans order. Human Machine Integration implies partnership between the human and computer in which information is exchanged for **Working** together. Human Machine Intelligence implies partnership between the human and computer in which information is exchanged for **Thinking** together. There is a continuum from Interaction to Integration then Intelligence. Intelligent and Integration extend but do not replace interaction.