SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT

TSC Category	Development and Implementation					
TSC Title	Computer Vision Technology					
TSC Description	Develop and deploy vision analytics algorithm and spatial sensing and/or reasoning systems					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
				ICT-DIT-4022-1.1	**ICT-DIT-5022-1.1**	
				Set-up and deploy video analytics algorithms and perform system performance evaluations	Build spatial sensing and spatial reasoning systems	
Knowledge				• Vision system concepts • Business applications of vision systems • Methods to represent image and video data • Image and video processing, filtering and transformation methods • Feature extraction and representation techniques • Local feature descriptions, edge, colour, texture and motion • Global feature descriptions, statistical and geometrical methods • Deep learning concepts • Object segmention, detection and recognition • Activity tracking, generative models, scene understanding and event discovery • Vision system architecture • Vision communication protocols	• Spatial sensing technology and modelling from sensor data • Applications of spatial sensing and reasoning technology • 3D sensor data representation and modelling • Sensor data representation and modelling • 3D scene scanning and mapping • Stereo vision for scene reconstruction, camera pose estimation, structure from motion • Feature extraction, description and registration from sensor data for spatial localisation • Machine learning methods for spatial localisation, 3D object recognition and 3D scene recognition • Applications of spatial sensing and reasoning in	

				• Real-world design constraints and solution options	robotics, gaming and augmented reality	
Abilities				• Identify the needs of vision systems technology in industrial applications • Apply the principles of processing, filtering and analysis methods for video data • Analyse global feature descriptions • Design and implement feature extraction and representation methods • Design and apply machine-learning based methods for object detection, object tracking and activity recognition • Design and apply video analytics algorithms for high-level video analytics tasks • Design the architecture of appplied vision systems • Design, develop and evaluate edge-based and cloud-based systems	• Evaluate and implement sensor data models and representation methods • Analyse local and global feature extraction and descriptions for 3D scenes • Design and implement scene scanning and mapping methods • Design and apply machine learning-based methods for 3D object and scene recognition • Analyse the representation of video data in spatial and temporal domain • Process, filter and analyse video data in real time using modelling and processing models • Analyse the object trajectory using classification and clustering methods • Perform object tracking and action recognition in video sequences in realtime • Analyse audio signal representation in spatial and frequency domain • Design and apply audio classification methods using machine learning techniques • Design real-time audio-visual sense making systems	

Range of Application	