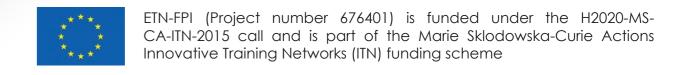
european training network on full parallax imaging



The project studies the phenomena of lightfield formation, propagation and perception in order to develop future imaging devices, which recreate the visual world realistically. Different disciplines deal with these phenomena. Physics and optics look at light as either wave or ray phenomenon and study its propagation and diffraction effects therein. Computer graphics deals with properties of materials, lighting conditions and corresponding ray rendering. Computer vision studies object recognition, scene analysis and interpretation. Visual neuroscience builds computational models to describe and quantify how our vision works. Naturally, different fields of science approach relevant problems using different concepts and terminology.

The research programme is organized in three work packages (WPs), where individual projects are integrated in order to address the challenges in full parallax imaging:

WP1: Sensing and content creation, focusing on problems of optimal spatialangular resolution for lightfield sensing

WP2: Computational imaging and compression, focusing on problems of analysis, interpretation and compression of lightfield data

WP3: Vision and Visualization, focusing on problems of full parallax visualization of 3D data



The network combines five underlying fundamental areas for training and research:

The programme will advance the knowledge in the area of 3D scene sensing,

- lightfield analysis and interpretation,
 - and visualization of full parallax 3D content
- visual neuroscience
- optics
- visual computing
- signal and data processing
- management of innovation

research



WP1 Sensing and Content Creation Problems of scale and

WP2 Computational Imaging and Compression Problems of data analysis,

Problems of field-of-view and ray distribution

WP3 Vision and Visualization

spatio-angular resolution interpretation and computational efficiency Plenoptic sampling,

scene reconstruction Lenslet-based light field capture and field acquisition

ESR15

ESR14

ESR10

and modeling microscopy Lightfield

ESR3 ESR5

ESR11 ESR9

Computer vision

scene geometry

reconstruction

ESR4

ESR2 ESR1

parallax perception

User -tracked FPI,

field reconstruction

image-based light-

ESR1

ESR8 ESR6

Wide field-of-view

ESR7



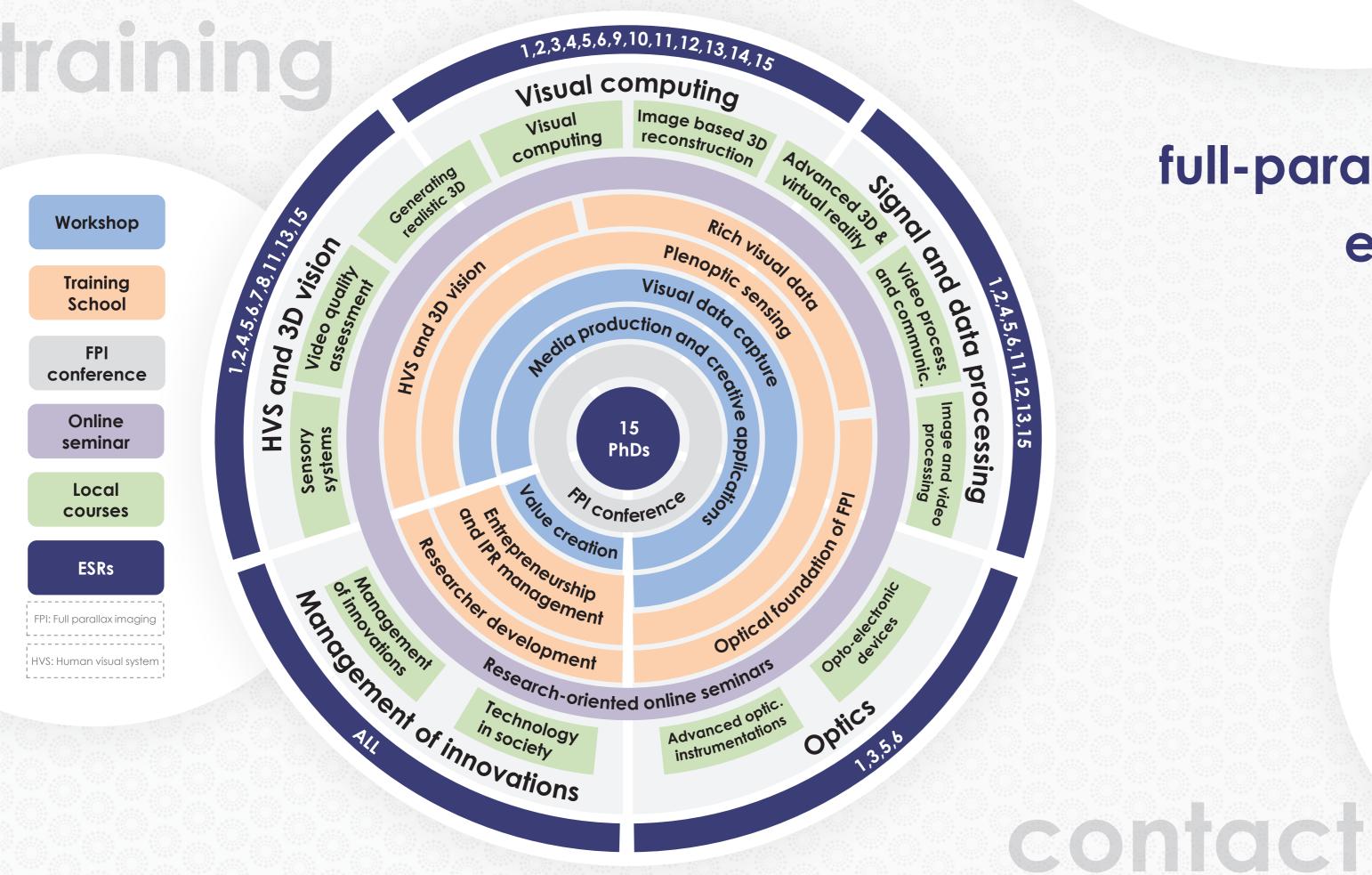
User factors in FPI:

reconstruction

lightfield

subjective quality

and interaction



full-parallax-imaging.eu etn-fpi.eu

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network































