Sergio Moreschini

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Background

My background is in Information Technologies with specialization in Signal Processing. My main research as a doctoral student is related to Light Field (LF) and its representations. I want to broaden my horizons in the field of imaging and video: this motivated me to explore actual trends like machine learning and deep learning. I want to constantly improve myself both as a person and as a researcher.

Education

PhD.

DOCTORAL RESEARCHER ON COMMUNICATION AND INFORMATION TECHNOLOGIES
Tampere University (TAU), Finland - 2016-Present

Master Degree

COMMUNICATION AND INFORMATION TECHNOLOGIES
Università degli Studi Roma Tre, Italy - 2013-2016
grade 110/110 cum Laude

Bachelor Degree

ELECTRONIC ENGINEERING
Università degli Studi Roma Tre, Italy - 2008-2012
grade 90/110

Experience

#3DMediaGroup
#CIVIT

Researcher, 3D Media Group, Tampere University. Our goal is to investigate methods for capturing, processing and display 3D visual data. Related projects:

- *Capture*: rig-mounted single/multi camera capture for LF content creation[1,2]; 360-degree cameras capture, livestream and content creation[1].
- *Analysis*: ***Shearlet-based LF reconstruction of scenes with non-Lambertian properties[1];*** fusion of multi-camera-based LF[2]; plenoptic-displaced camera LF analysis[2].
- *Visualization*: LF visualization for multiview display[1]; 360-degree camera reproduction on head mounted devices[1].

[1] Projects developed in the Center for Immersive Visual Technologies **CIVIT** in Tampere University.
[2] Projects developed during the secondment period (2017) at **Christian-Albrechts-Universität zu Kiel** (DE), in collaboration with Raytrix GmbH.

#ETN-FPI

European Training Network on Full Parallax Imaging: Four year (2015-2019) H2020 Marie Sklodowska-Curie Innovative Training Network aimed at advancing the research in areas of plenoptics, light field and integral imaging.

#ERASMUS

#MasterThesis

Erasmus Project: Five months (2014) spent in Tampere University of Technology as an Erasmus Exchange student. This experience evolved in a collaboration for the master thesis (2016) titled: ***Channel Resource Allocation for Multi-Camera Video Streaming in Vehicular Ad-Hoc Networks***. Published in an international conference.

Ongoing Projects

- *Capture***:** Bidirectional capture for LF microscopy[3].
- *Analysis***:** Volumetric representation of specimens captured with LF microscopes.
- *Machine Learning:* Investigating neural networks (U-net) for LF based biomedical imaging in Tensorflow and Keras; LF Reconstruction in Pytorch.

[3] Project in development in collaboration with **CBIG** group (TAU)

Publications

- E. Belyaev, S. Moreschini, and A. Vinel, “Uncoordinated multi-user video streaming in VANETs using Skype,” IEEE 22nd Int. Work. on Comp. Aided Mod. and Des. of Comm. Links and Net. (CAMAD), pp. 1-3, June 2017.
- S. Moreschini, G. Scrofani, R. Bregovic, G. Saavedra, and A. Gotchev, “Continuous Refocusing for Integral Microscopy with Fourier Plane Recording”. Euro. Signal Process. Conf, (EUSIPCO), pp. 216-220, Sept. 2018.
- S. Moreschini, R. Bregovic and A. Gotchev, “Shearlet-based light field reconstruction of scenes with non-Lambertian properties”. 8-th European Workshop on Visual Information Processing, (EUVIP), Oct. 2019.
- F. Gama, S. Moreschini, I. Huttu-Hiltunen, O. Suominen, R. Bregovic, and A. Gotchev, “CIVIT dataset: Stereoscopic 3D-360 videos of typical media production use cases”. ELFI workshop, 2019.
- S. Moreschini, F. Gama, R. Bregovic, and A. Gotchev, “CIVIT dataset: Horizontal-parallax-only densely-sampled light-fields”. ELFI workshop, 2019.
- F. Lomio, D. M. Baselga, S. Moreschini, H. Huttunen and D. Taibi, “RARE: A Labeled Dataset for Cloud-Native Memory Anomalies”. MaLTeSQuE 2020.
- V. Lenarduzzi, F. Lomio, S. Moreschini, D. Taibi, and D. A. Tamburri. “Software Quality for AI: Where we are now?” SWQD2020 (to appear).

Awards

Best poster award @ IEEE SPS Summer School 2018

Training

- Training school on 3D displays and the human visual system;
- Training school on optical foundations of full-parallax imaging;
- Workshop on multi-camera image processing for media production;
- 3D and Virtual Reality;
- Advanced Image Processing (Teaching Assistant);
- Computer vision: 3D scene reconstruction;
- Training school on plenoptic sensing;
- Signal compression;
- Workshop on visual data capture;
- Training school on researcher development;
- Training school on LF data representation, interpretation and compression;
- Workshop in Media Production.

Skills

Software		Theory		Languages	
MATLAB	●●●	Plenoptic	●●●	Italian	Native
Python	●●○	Frame Theory	●●○	**English**	**Working proficiency**
Pytorch	●●○	**Light Field**	●●●	French	Elementary
Tensorflow	●○○	Optics	●○○		
Linux	●●○	V.C. standards	●●○		
Blender	●●●				
OFFICE	●●●				

Reference

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