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Sergiu Oprea

Google Scholar
LinkedIn

Passionate about computer vision and deep learning. Focused on pushing the boundaries of future video frame prediction using synthetic data generated from interactive VR environments and addressing the domain shift problem. Also excited about GPGPU programming, 3D computer graphics and robotics.

Education

University of Alicante, PhD student *Sep. 2018 – Present*
- Focused on Deep Learning and Computer Vision for Future Video Frame Prediction.
- Supervised by Prof. Jose Garcia-Rodriguez and Sergio Orts-Escolano.

University of Alicante, M.Sc. in Robotics *Sep. 2016 – July 2017*
- Extraordinary award for best academic record – Grade 9.33/10.
- Master's thesis: "A long short-term memory based Schaeffer gesture recognition system".

Rey Juan Carlos University, M.Sc. in Comp. Graphics, VR and Games *Sep. 2015 – July 2016*
- Coursework in 3D graphics, rendering, parallel programming, VR interaction and haptics.

University of Salford, Erasmus Intensive Programme on Big Data *June 2014 – July 2014*

University of Alicante, B.Sc. in Computer Engineering *Sep. 2011 – July 2015*
- High Academic Performance Group – Grade: 7.52/10.
- Bachelor's thesis: "Hand gesture recognition for human-computer interaction using low-cost RGB-D sensors".

Work/Research Experience

FORTH, Visiting Researcher *Sep. 2020 – Dec. 2020*
- Supervised by Prof. Antonis Argyros and Nikolaos Kyriazis in the Computational Vision and Robotics laboratory.
- Developed HandGAN to close the gap between synthetic and real images of hands via image-to-image translation.

University of Alicante, Research Engineer *Mar. 2018 – Aug. 2018*
- Implemented UnrealGrasp to enable interaction in UnrealROX, a VR environment for synthetic data generation.

University of Alicante, Research Engineer *Sep. 2017 – Feb. 2018*
- Implemented a gesture recognition system deployed on Pepper robot to assist children with autism. See also.

University of Alicante, Research Engineer *July 2016 – Dec. 2016*
- Developed an RNN-based system for oil spill detection in SLAR imagery captured from unmanned aerial vehicles.

Most Relevant Publications

"H-GAN: the power of GANs in your Hands" S. Oprea, G. Karvounas, P. M.-Gonzalez, N. Kyriazis, S. O.-Escolano, I. Oikonomidis, A. G.-Garcia, A. Tsoli, J. G.-Garcia, A. Argyros. *IJCNN,* 2021 [Paper | Code]

"A Review on Deep Learning Techniques for Video Prediction" S. Oprea, P. M.-Gonzalez, A. G.-Garcia, J. C.-Vargas, S. O.-Escolano, J. G.-Rodriguez, A. Argyros. *PAMI,* 2020 [Paper]

"A visually realistic grasping system for object manipulation and interaction in virtual reality environments" S. Oprea, P. M.-Gonzalez, A. G.-Garcia, J.-A. C.-Vargas, S. O.-Escolano, J. G.-Garcia. *Computer & Graphics, El Sevier,* 2019 [Paper | Video | Code]

"The RobotriX: An eXtremely Photorealistic and Very-Large-Scale Indoor Dataset of Sequences with Robot Trajectories and Interactions" A. G.-Garcia, P. M.-Gonzalez, S. Oprea, J. C.-Vargas, S. O.-Escolano, J. G.-Garcia, A. J.-Alvarez. *IROS (oral),* 2018 [Paper | Video | Code]

Open-source work

HandGAN, deep learning for synthetic-to-real image translation in PyTorch: https://github.com/sergiuoprea/hgan
UnrealGrasp, for VR interaction in Unreal Engine 4: https://github.com/3dperceptionlab/unrealgrasp
UnrealROX, for synthetic data generation in Unreal Engine 4: https://github.com/3dperceptionlab/unrealrox

Awards and Extra-Curricular Activities

Udacity courses: Self-Driving Cars Nanodegree - Term 1 (2017), Deep Learning Foundations Nanodegree (2017)
Summer schools: PUMPS+AI (2018), AERFAI Deep Learning (2017), CUDA (2013), OpenGL (2013)
Participation in research projects: COMBAHO (2017-2019), ONTIME (2016), SIRMAVED (2015)
Awards: PhD ACIF Grant (2018), M.Sc. in Robotics best academic record (2017), Research Initiation Grant (2017)

Skills

Technical: Python, C++, C, CUDA, Unreal Engine 4, Deep Learning frameworks (PyTorch/Tensorflow)
Languages: English (proficient), Romanian (native), Spanish (native), French (entry level).