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Sergiu Oprea

Google Scholar

LinkedIn

Passionate about computer vision and deep learning. Currently 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 in Computer Science *Since Sep. 2018*
- Deep Learning and Computer Vision for Future Video Frame Prediction.
- Supervised by Prof. Jose Garcia-Rodriguez and Sergio Orts-Escolano.

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

Rey Juan Carlos University, Master in Computer Graphics, VR and Games *Sep. 2015 – July 2016*
- Completed coursework: 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, Bachelor in Computer Engineering *Sep. 2011 – July 2015*
- Bachelor's thesis: "Hand gesture recognition for human-computer interaction using low-cost RGB-D sensors".
- High Academic Performance Group

WORK/RESEARCH EXPERIENCE

Meta Reality Labs, Research Scientist Intern, Burlingame CA, USA *May. 2022 – Aug. 2022*

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.

SELECTED 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 | Video | 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 SOFTWARE

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).