Sergiu Oprea

October 15, 2018

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- **Google Scholar**
- **LinkedIn**

About Me

I am currently a PhD student at the University of Alicante focused on deep learning-based video prediction. My research interests span topics mainly in Computer Vision, Virtual/Augmented Reality and Deep Learning. I am also interested in GPGPU programming, 3D computer graphics and AI.

Work/Research Experience

2018 (6 months) — **Research Engineer**
Department of Computer Technology, University of Alicante
Worked on synthetic and photorealistic data generation with robot trajectories and object interaction. Focused on the implementation of a grasping system and robot mobility.

2017 (6 months) — **Research Engineer**
Department of Computer Technology, University of Alicante
Worked on the COMBAHO (TIN2016-76515-R) project implementing a human-machine interaction system deployed on Pepper robot.

2016 (6 months) — **Research Engineer**
University Institute for Computer Research, University of Alicante
Worked on the ONTIME (RTC-2014-1863-8) project developing an RNN-based system for oil spill detection using SLAR imagery from an Unmanned Aerial Vehicle (UAV).

2014–2015 (8 months) — **Research Intern**
Department of Computer Technology, University of Alicante
Worked on the SIRMAVED (DPI2013-40534-R) project implementing a basic gesture recognition system to help children with autism overcome language delays. The research was performed under the direction of Jose Garcia-Rodriguez and Sergio Orts-Escolano.

2014 (4 months) — **Research Intern**
Department of Computer Technology, University of Alicante
Worked on the development of a physiotherapy support tool using data obtained from a Microsoft Kinect sensor. The research was performed under the direction of Daniel Ruiz-Fernandez.

Educational Background

2018–2021 **Doctor of Philosophy in Deep Learning and Computer Vision**
University of Alicante
PhD Thesis: TBD - video prediction, scene understanding and unsupervised learning.
Advisors: Jose Garcia-Rodriguez and Sergio Orts-Escolano.

2016–2017 **Master's Degree in Automation and Robotics**
University of Alicante
Master's Thesis: *Deep Learning-based Human-Machine Interaction System: Gesture Recognition.*
Advisors: Jose Garcia-Rodriguez and Jorge Pomares Baeza.

2015–2016 (TBD) **Master's Degree in Computer Graphics, Games and Virtual Reality**
University of Rey Juan Carlos
Master's Thesis: TBD.
Currently with two subjects to be done.

2011–2015 **Bachelor's Degree in Computer Engineering**
University of Alicante
High Academic Performance Group
Bachelor's Thesis: *Hand gesture recognition for human-computer interaction using low-cost RGB-D sensors.*
Advisors: Jose Garcia-Rodriguez and Sergio Orts-Escolano.

2014 **Erasmus Intensive Programme: Big Data**
The University of Salford (Manchester)

Honors and Awards

2017 **Master's Degree in Automation and Robotics Extraordinary Award**
Awarded for achieving the best academic record for the Master in Automation and Robotics (University of Alicante, 2016-2017) with a GPA of 9.33/10.

Grants

2018 **ACIF Grant for PhD Studies**
Grant for Doctoral studies founded by the *Ministry of Education, Research, Culture and Sport* (Spain).

2017 **Research Initiation Grant**
Research initiation grant (January, 2017 – June, 2017) at the Department of Computer Technology (University of Alicante), co-funded by the *Industrial Informatics and Computer Networks (I2RC)* research group and the *Vice-Rectorate for Research and Knowledge Transfer.*

2014 **Research Collaboration Grant**
Research collaboration grant for initiation in research tasks (November, 2014 – June, 2015) at the Department of Computer Technology (University of Alicante) funded by the *Ministry of Education, Research, Culture and Sport* (Spain).

Research

Projects participation

2017 – Today | **COMBAHO** (Spanish National Project TIN2016-76515-R)
"COMe BAck HOme: system for enhancing autonomy of people with acquired brain injury and dependent of their integration into society".

2016 | **ONTIME** (Spanish National Project RTC-2014-1863-8)
"Remote operation of information transmission in emergency missions".

2014 – 2015 | **SIRMAVED** (Spanish National Project DPI2013-40534-R)
"Development of a comprehensive robotic system for monitoring and interaction for people with acquired brain damage and dependent people".

Publications

Journals

[j6] **A Survey On Deep Learning Techniques for Image and Video Semantic Segmentation**. Alberto Garcia-Garcia, Sergio Orts-Escolano, Sergiu Oprea, Victor Villena-Martinez, Pablo Martinez-Gonzalez, Jose Garcia-Rodriguez. Applied Soft Computing (2018). doi.org/10.1016/j.asoc.2018.05.018

[j5] **A long short-term memory based Schaeffer gesture recognition system**. Sergiu-Ovidiu Oprea, Alberto Garcia-Garcia, Sergio Orts-Escolano, Víctor Villena-Martinez, John Alejandro Castro-Vargas. Expert Systems (2017). doi.org/10.1111/exsy.12247

[j4] **A Study of the Effect of Noise and Occlusion on the Accuracy of Convolutional Neural Networks applied to 3D Object Recognition**. Alberto Garcia-Garcia, Jose Garcia-Rodriguez, Sergio Orts-Escolano, Sergiu Oprea, Francisco Gomez-Donoso, Miguel Cazorla. Computer Vision and Image Understanding (2017). doi.org/10.1016/j.cviu.2017.06.006

[j3] **A Robotic Platform for Customized and Interactive Rehabilitation of Persons with Disabilities**. Francisco Gomez-Donoso, Sergio Orts-Escolano, Alberto Garcia-Garcia, Jose Garcia-Rodriguez, John Alejandro Castro-Vargas, Sergiu Ovidiu-Oprea, Miguel Cazorla. Pattern Recognition Letters (2017). doi.org/10.1016/j.patrec.2017.05.027

[j2] **Classifying Behaviours in Videos with Recurrent Neural Networks**. Javier Abellan-Abenza, Alberto Garcia-Garcia, Sergiu Oprea, David Ivorra-Piqueres, Jose Garcia-Rodriguez. International Journal of Computer Vision and Image Processing (2017). doi.org/10.4018/ijcvip.2017100101

[j1] **Multi-sensor 3D Object Dataset for Object Recognition with Full Pose Estimation**. Alberto Garcia-Garcia, Sergio Orts-Escolano, Sergiu-Ovidiu Oprea, Jose Garcia-Rodriguez, Jorge Azorin-Lopez , Miguel Cazorla. Neural Computing and Applications. doi.org/10.1007/s00521-016-2224-9

Conferences and Congresses

[c5] **The RobotriX: An eXtremely Photorealistic and Very-Large-Scale Indoor Dataset of Sequences with Robot Trajectories and Interactions.** Albert Garcia Garcia, Pablo Martinez-Gonzalez, Sergiu Oprea, Sergio Orts-Escolano, Jose Garcia-Rodriguez. International Conference on Intelligent Robots (IROS), 2018 (Accepted)

[c4] **Detecting and Manipulating Objects with a Social Robot: An Ambient Assisted Living Approach.** John Alejandro Castro-Vargas, Alberto Garcia-Garcia, Sergiu Oprea, Sergio Orts-Escolano, Jose Garcia-Rodriguez. Iberian Robotics Conference (ROBOT), 2017

[c3] **A Recurrent Neural Network based Schaeffer Gesture Recognition System**. Sergiu-Ovidiu Oprea, Alberto García-García, José García-Rodríguez, Sergio Orts-Escolano, Miguel Cazorla. International Joint Conference on Neural Networks (IJCNN), 2017. doi.org/10.1109/IJCNN.2017.7965885

[c2] **Candidate Oil Spill Detection in SLAR Data. A Recurrent Neural Network-Based Approach**. Sergiu-Ovidiu Oprea, Pablo Gil, Damián Mira, Beatriz Alacid. 6th Int. Conf. on Pattern Recognition Applications and Methods (ICPRAM), 2017. doi.org/10.5220/0006187103720377

[c1] **Optimized Representation of 3D Sequences using Neural Networks**. Sergio Orts-Escolano, Jose Garcia-Rodriguez, Vicente Morell, Miguel Cazorla, Alberto Garcia-Garcia, Sergiu-Ovidiu Oprea. International Work-conference on the Interplay between Natural and Artificial Computation (IWINAC), 2015

Book Chapters

[b1] **Object Recognition Pipeline: Grasping in Domestic Environments**. John Alejandro Castro Vargas, Alberto Garcia Garcia, Sergiu Oprea, Sergio Orts Escolano, Jose Garcia Rodriguez. Advancements in Computer Vision and Image Processing (2018). doi.org/10.4018/978-1-5225-5628-2.ch002

Reviewer

IJCNN "International Joint Conference on Neural Networks"

Societies/Memberships

HiPEAC "Member of the European Network of Excellence on High Performance and Embedded Architecture and Compilation."

AERFAI "Member of the Spanish Association of Pattern Recognition and Image Analysis"

Courses and training

- **Programming and Tuning Massively Parallel Systems + AI (PUMPS) Summer School**
  Barcelona Supercomputing Center, 2018.
- **Self-Driving Car Nanodegree - Term 1: Deep Learning**
  Online at Udacity, 2017.
- **Deep Learning foundations, Nanodegree program**
  Online at Udacity, 2017.

- **Machine Learning at University of Stanford**,
  Online at Coursera, 2016. Verify at `coursera.org/verify/P9KHUVSUBQK8`
- **Deep Learning by Google**
  Online at Udacity, 2016.
- **Summer course on scientific applications and computer vision on graphics processors (CUDA programming)**
  at the University of Alicante, 2013.
- **Workshop on scientific applications and computer vision on graphics processors (CUDA programming)**
  at the University of Alicante, 2013.
- **OpenGL in depth**
  at the University of Alicante, 2013.
- **RepRap 3D printers**
  at the University of Alicante, 2013

Languages

English	**Limited working proficiency (B2+)**
French	**Elementary proficiency (A2)**
Romanian	**Native proficiency**
Spanish	**Native proficiency**

Reference List

- **Jose Garcia-Rodriguez** jgarcia@dtic.ua.es
  Department of Computer Technology and Computation
  University of Alicante
  Spain
- **Sergio Orts-Escolano** sorts@ua.es
  Department of Computer Science and Artificial Intelligence
  University of Alicante
  (Former Microsoft Research)
  Spain