Sergiu Oprea

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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 GPU 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's movement.
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