Updated to January 1st, 2025

Part A. PERSONAL INFORMATION

First name	Alfredo	
Family name	Cuesta-Infante	
Gender (*)	Male	
e-mail	alfredo.cuesta@urjc.es	URL web : caporesearch.es/acuesta/
Open Researcher and Contributor ID (ORCID)		0000-0002-3328-501X

A.1. Current position

Position	Associate Professor (Profesor Titular)		
Initial date	19 / April / 2021		
Institution	Universidad Rey Juan Carlos		
Department Center	Dept. of Computer Science and Statistics Technical School of Computer Science		
Country	Spain	Office Telephone num.	+34.91.488.4757
Key words	Deep Learning, Computer Vision, Copula functions		

A.2. Previous positions

Period	Position/Institution/Country
2014-2020	Prof. Visitante, Univ. Rey Juan Carlos (URJC), Spain
2020-2021	Prof. Contratado Doctor Interino, URJC, Spain
2021	Prof. Contratado Doctor, URJC, Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Ms. in Physics	Univ. Complutense de Madrid, Spain	1998
PhD. in Computer Engineering	Univ. Nacional de Educación a Distancia, Spain	2006

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

Regarding my research trajectory, during the last ten years I have published 4 papers in class 1 conferences, with rating A++ in the GGS ranking, 1 paper in class 2, 8 papers in journals ranked Q1 and 2 more in Q2, together with 9 congress communications. My line of work is real-life problems and the application of Machine and Deep Learning to them.

The metrics of my publications are:

Organization	h-index	Citations
WoS (L-3708-2014)	11	1032
Scopus (35955730700)	12	1470
Google Scholar (OQsC-14AAAAJ)	17	3395

I have been working with Dr. Kalyan Veeramachaneni and his group, “Data-to-AI”, at the Laboratory of Intelligent and Decision Systems (LIDS), in MIT for more than 10 years. This lasting collaboration is the result of different postdoc stays at University of New Mexico (UNM) and MIT between 2008 and 2018, for a total time of almost 20 months. My collaboration with this group covers different hot topics on deep learning research. On the one hand, synthetic data generation [C1.8, C1.9, C1.11], unsupervised anomaly detection [C2.2], and adversarial attacks on large language models [C1.3, C2.1]. All these works are related to generative models from two approaches: neural networks and probabilistic modeling with copulas and vines. On the other hand fairness [C1.5], auto-ML [C2.3, C2.4] and representation learning [C2.5, C2.6] has been also explored.

Besides, I am with the URJC research group CAPO (Advanced Computation, Perception and Optimization), working on computer vision solutions to real-life problems, particularly interested in smart city contexts. In [C1.4, C1.7] we apply two state-of-the-art models to dumpster detection and recognition, [C1.10] proposes a lightweight method for tracking pedestrians and [C1.6] estimates the human pose in 3D from monocular images. Recently, I have become

involved in Deep reinforcement learning as an optimization tool [C1.1] and in Incremental learning [C1.2]. Also with CAPO, I have participated in 6 research projects with public funding, co-leading 3 of them. The most recently granted [C3.1] is related to synthetic data generation of clinical trials, in which a huge amount of money is spent and only 5% gets to the final stage. This project is a Public-Private collaboration initiative. The rest [C3.2-6] are deeply related to computer vision. Additionally, I have participated in 13 research contracts with several Spanish companies, two from USA and one from Italy, being leader of the contract in 4 of them. In these contracts I would highlight the strong commitment to the welfare of society: cybersecurity [C4.4], augmented reality for the visually impaired [C4.5], circular economy [C4.6] and waste management [C4.8]. Previously to 2014 I have worked with a research group in Universidad Complutense (UCM) in bioinspired algorithms for real-life problems such as Chip flooplanning or gluco-regulatory modeling. With them, I am listed as inventor in an accepted patent.

Regarding my academic experience, I began to teach Computer Science in Centro de Estudios Superiores Felipe II, a University College depending on UCM in 1999. In 2015 I joined the E.T.S. de Ingeniería Informática at URJC as visiting professor. On April 2021 I gained an Associate Professor position. Being URJC faculty I obtained 2 three-year Docentia (teaching quality acknowledgement). During this time, I have taught several and diverse subjects such as Digital design, Information systems, Artificial intelligence, or Cybersecurity. I also teach Pattern Recognition in the URJC Master of Computer Vision, which allows students to pursue a PhD once graduated. I also have been advisor in three doctoral thesis and currently I am supervising other three. As a result of this trajectory, I have been granted 2 six-year research periods (2009-2014 and 2015-2020) and 4 five-year teaching periods.

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications

nº	Title, Authors and Publisher Year	Quality
1	"Deep reinforcement learning for automated search of model parameters: Photo-Fenton wastewater disinfection case study". S. Hernandez-Garcia, A. Cuesta-Infante, J.A. Moreno-SanSegundo and A.Sanz; in Neural Computing and Applications (2023)	IF 4.5 Q2
2	"Fast Incremental Learning by Transfer Learning and Hierarchical Sequencing" L. Llopis-Ibor, C. Beltran-Royo, J.J. Pantrigo, A. Cuesta-Infante; in Expert Systems with Applications, (2023)	IF 7.5 Q1
3	"R & R: Metric-guided Adversarial Sentence Generation" L. Xu, A. Cuesta-Infante, L. Berti-Equille, K. Veeramachaneni; in Findings of AACL/IJCNLP (2022)	Class 2 in GGS
4	"Visual classification of dumpsters with capsule networks", F.J. Garcia-Espinosa, D. Concha, J.J. Pantrigo, A. Cuesta-Infante; in Multimedia Tools and Applications (2022)	IF 5.779 Q2
5	"Towards Reducing Biases in Combining Multiple Experts Online". Y. Sun, I. Ramírez, A. Cuesta-Infante, K. Veeramachaneni; in Int. Joint Conf. on Artificial Intelligence (2021)	Class 1 in GGS
6	Bayesian Capsule Networks for 3D human pose estimation from single 2D images". I. Ramírez; A. Cuesta-Infante, E. Schiavi, J.J. Pantrigo; in Neurocomputing (2020)	IF 4.072 Q1
7	"Convolutional neural networks for computer vision-based detection and recognition of dumpsters"; I. Ramírez, A. Cuesta-Infante, J.J. Pantrigo, A.Sanz, et al.; in Neural Computing and Applications (2020)	IF 4.664 Q1
8	"Modeling tabular data using conditional GAN" L. Xu, M. Skoularidou, A. Cuesta-Infante, K. Veeramachaneni; in NeurIPS conference, (2019)	Class 1 in GGS
9	"Learning Vine Copula Models For Synthetic Data Generation" Y. Sun, A. Cuesta-Infante, K. Veeramachaneni; in AAAI conference (2019)	Class 1 in GGS

10	"Lightweight Tracking-by-Detection system for multiple pedestrian targets" B. Lacabex, A. Cuesta-Infante, A. Sanz, J.J. Pantrigo; in Integrated Computer-Aided Engineering (2016)	IF 5.264 Q1
11	"Copula Graphical Models for Wind Resource Estimation" K. Veeramachaneni, A. Cuesta-Infante, U.M. O'Reilly; in Int. Joint Conf. on Artificial Intelligence (2015)	Class 1 in GGS

(***IF = Impact Factor, GGS = GII-GRIN-SCIE conference rating***)

C.2. Congress, indicating the modality of their participation (presentation, poster,…)

nº	**Title, Authors and Publisher Year**	**Modality & quality**
1	"In situ Augmentation for Defending Against Adversarial Attacks on Text Classifiers". L. Xu, L. Berti-Equille, A. Cuesta-Infante, K. Veeramachaneni, in KDD Workshop on Adversarial Machine Learning (2022)	Poster, Best paper award
2	"TadGAN: Time series anomaly detection using generative adversarial networks" A. Geiger, D. Liu, S. Alnegheimish, A. Cuesta-Infante, K Veeramachaneni, in IEEE Int. Conf. on Big Data (2020)	Class 3 GGS, AR=18%, Oral
3	"ATM: A distributed, collaborative, scalable system for automated machine learning"; T. Swearingen, W. Drevo, B. Cyphers, A. Cuesta-Infante, A. Ross, K. Veeramachaneni; in IEEE Int. Conf. on BigData, 151-162 (2017)	Class 3 GGS, AR=18%, Oral
4	"Sample, estimate, tune: Scaling bayesian auto-tuning of data science pipelines"; A. Anderson, S. Dubois, A. Cuesta-Infante, K. Veeramachaneni; in IEEE Int. Conf. on Data Science and Advanced Analytics (2017)	Oral
5	"Learning representations for log data in cybersecurity" I. Arnaldo, A. Cuesta-Infante, A. Arun, M. Lam, C. Bassias, K. Veeramachaneni; in Int. Conf. on Cybersecurity, Cryptography and Machine Learning, (2017)	Oral
6	"Markov Switching Copula Models for Longitudinal Data" A. Cuesta-Infante, K. Veeramachaneni; in IEEE 16th Int. Conf. on Data Mining Workshops, (2016)	Oral

(***AR = Acceptance rate, Oral = oral presentation***)

C.3. Research projects, indicating your personal contribution (abbreviated "Contrib.").

nº	**Project Name**	**Identifier**	**Period**	**Contrib.**
1	SYNTHETIC PATIENT. Development and validation of algorithms for synthetic data generation in clinical trials.	CPP2023-010929	24-27	Co-PI
2	EYEOT. Smart eyes on digital twins.	PID2021-128362OB-I00	22-24	Co-PI
3	POLLUTWIN. High Fidelity Digital Twin of Pollutant Mobile Sources in Cities.	TED2021-129162B-C22	22-24	Research team
4	FOTOCAOS-CM. New computational methods for simulating and optimization of photochemical processes.	Y2018/EMT-5062	19-21	Research team
5	SMARTEYES. Smart Eyes for Smart Cities	RTI2018-098743-B-I00	19-21	Co-PI
6	HARAMI. Human Activity Recognition with Ambient Intelligence methods	TIN2015-69542-C2-1-R	16-18	Research team

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any.

Contracts as IP or Co-IP

1. "Research on techniques for automated recognition of mechanical noise perceived by passengers in a car" (BE CAE & Test, 2021)
2. "Exploring deep learning techniques for automatic recognition of terrain features using remote sensing" (Simbiotica, 2018)
3. "Research and development of soft computing techniques for geospatial data analysis" (AMS Geomatics, 2018)
4. "Developing advanced statistical methods for clustering, classification and novelty detection in the context of cybersecurity" (PatternEx, 2015)

Contracts as research team

5. "Integration of artificial intelligence and mixed reality methods to improve the perception and navigation of people with low vision in urban environments" (BielGlasses, 2017-2021).
6. "Development of computer vision systems applied to the technological transformation of the waste recovery sector for the implementation of an effective circular economy in the industry" (Pixelabs, 2021).
7. "Computer Vision for Automotive Applications" (Navmii Labs Inc., 2018)
8. "Image recognition of waste containers using advanced machine learning techniques" (Ecoembes, 2017)

Patents

- "Method for modelling the blood sugar level by genetic programming" [Link] granted in March 3rd, 2016; with the following order of authors: JI. Hidalgo, O. Garnica, J. Lanchares, JL. Risco, JM Colmenar, A. Cuesta, E. Maqueda, M. Botella y JA. Rubio.