

Jorge Muñoz

Deep Learning Researcher

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Personal statement

As a dedicated Deep Learning Researcher and Engineer, my passion for Artificial Intelligence has driven my academic and professional pursuits. Graduating with first-class honors in Computer Science Engineering in 2006, I have continued to expand my knowledge and expertise in the field by obtaining a Ph.D. in Artificial Intelligence, an MBA and a degree in Mathematics.

I have collaborated with innovative startups across the globe (US, UK, EU and others). I have thrived in remote roles since 2015, adapting to diverse work environments and embracing cutting-edge technologies. Always learning and improving at the core of my work methodology. By staying up-to-date with the latest advancements in Deep Learning.

Education

October 2020 – September 2024 Bachelor's Degree in **Mathematics**. UNED

October 2011 – November 2012 **MBA** Part-Time at EOI (Escuela de Organización Industrial) Management School. Funded by EOI (see awards and prizes below). International stay at UCF for a week.

October 2008 – October 2011 **Ph.D.** in **Computer Science and Artificial Intelligence**. Research Focus: Imitation learning in video games and the development of believable non-player characters
Published papers in international conferences on **computational intelligence** in games (CIG 2009, CIG 2010, UKCI 2010)
I won the botprize in 2010 (Turing Test for videogames) with a Conscious Machine cognitive architecture. An AAA videogame company was interested in the technology. I tried to create a company (Comaware) with this technology.

October 2007 – September 2008 **Master** in Computer Science and Information Technology. Specialization: **Artificial Intelligence**. University Carlos III of Madrid. Funded by the university. My thesis was about using Artificial Intelligence for step-by-step resolution of linear equations.

October 2001 – November 2006 **Computer Science Engineering** (5 years career). Specialization: Artificial Intelligence. I graduated with **first-class honors** and **the best bachelor's thesis**. University Carlos III of Madrid.

Experience

January 2020 – now

Freelance Deep Learning Engineer/Researcher. Some examples of projects:

- Detection of vulnerabilities in smart contracts using **large language models**, both openai models and opensource models as llama 3 and gemma among others. (+1 year project)
- Creation of images of people in different scenarios using **diffusion models** and **loras**. Modification of people faces using **GANs** to change some face attributes as the hair and to upscale. (+1 year project)
- **Reinforcement learning** for 3D virtual world generation in Unreal Engine and Houdini. (4 months project)
- Stock price prediction models using **wavelets**, **transformers**, and **sequence-to-sequence** models (6 months project)
- 3D cloud point semantic instance recognition. (5 months project)
- Prototype for a service replacing real faces in images with **GAN**-generated fake faces.
- Aesthetics ranking for images.

May 2018 – January 2020	<p>Founder at Serendeepia (Madrid)</p> <p>In Serendeepia Research we were a small group of experts in Machine Learning and Deep Learning who built custom solutions based on state of the art research in Artificial Intelligence.</p> <p>I was CEO and CTO of the company. I created a remote-first culture with a well defined methodology to manage the projects: scrum and kanban boards. I picked our tools based on the best industry standards: Github with gitflow workflow for code, Kubernetes as cluster with Jenkins for continuous integration and Polyaxon as the platform to run experiments. I grew the company from 3 to 7 people, I managed successful projects for Fortune 500 companies and I lead the development of B2C products with the latest advancements in Deep Learning.</p>
January 2016 – August 2018	<p>Remote Machine Learning Engineer/Researcher at Chute (San Francisco, CA, USA) (Acquired in August 2018).</p> <p>Solely responsible for processing social media data (Instagram, Twitter) in real-time for valuable insights. Relevant projects:</p> <ul style="list-style-type: none"> • Multilabel image classification with TensorFlow and TensorFlow Serving (previously image classification with Caffe) in Python • Aesthetic model to score the beautifulness of the images in TensorFlow • Model in TensorFlow to create a perceptual hash of images using local and semantic information of images • Library in Python to train, test and deploy TensorFlow and Caffe models • Spam filter and user topics detection with Word2Vec and kmeans in Go <p><i>Keywords: TensorFlow, TensorFlow Serving, Python, Convolutional neural networks, Deep Learning</i></p>
June 2017 – April 2018	<p>Remote contractor as Machine Learning Researcher at Good AI Lab (San Jose, CA, USA).</p> <p>I was in charge to create Deep Learning research projects that run in ClusterOne for promoting and testing the platform. For example:</p> <p>https://medium.com/clusterone/personalized-medicine-redefining-cancer-treatment-with-deep-learning-f6c64a366fff</p>
March 2013 – September 2017	<p>Android lead developer in startups in London (Quipper, Shopcade) and as a remote contractor (Appgree).</p> <p>I lead the development of several Android mobile apps, most of them with more than a million downloads. I also trained the teams who took on the development of the apps when I left.</p>
December 2010 – February 2013	<p>Entrepreneur period. Startups and side projects with colleagues:</p> <ul style="list-style-type: none"> • Comaware: new technology based on Machine Consciousness to control virtual characters in video games and autonomous robots. • Howmaths: Artificial Intelligence applied to math problems. An A* algorithms applied to solve math equation systems. • A video game engine for Android developed from scratch as a side project to use Artificial Intelligence to control the non-player characters and procedural content generation.
September 2009 – January 2010	<p>Visiting research at “Center for Computer Games Research” IT University of Copenhagen (Denmark), group of Artificial Intelligence in video games. I worked in a project of controlling characters in video games throw an eye tracking system and recurrent neural networks.</p>
October 2007 – September 2011	<p>Research staff in training at University Carlos III of Madrid. I supervised several bachelor's thesis related with Artificial Intelligence and video games.</p> <p>I was rated by the students as an exceptional teacher (2008).</p>
December 2006 – August 2007	<p>Software developer in Spain in several companies: GTD Ingeniería de Sistemas y Software; Secosol soluciones y domótica.</p>

Research & Publications

Several **papers** in international conferences and **book chapters** (see <http://scholar.google.es/citations?hl=es&user=aHsYF-0AAAAJ> or <https://jorgemf.github.io/publications.html> for more details). Participation in scientific committee of international conferences (GECCO 2011, IADIS 2009).

Awards and prizes

2011	Winner team of the Human-Like Bot contest. Winner project (Comaware) in the national contest for university entrepreneurs organized by EOI. Awarded with an MBA at EOI and a study trip to Silicon Valley. Winner team of the 5th contests of ideas for creating scientific and technological based companies of the University Carlos III of Madrid with the project Comaware . We won six months of incubation in the business incubator of University Carlos III of Madrid.
2010	Winner team of the 2K BotPrize 2010 international contest. The 2K BotPrize is an adaptation of the Turing test to video games. Monetary prize of a \$2,000 and a trip to 2K studios in Canberra, Australia. Winner of the Car Set-up Optimization competition (using TORCS as simulator). \$500 prize.
2008	Rated by the students as an exceptional teacher, congratulated by the University Carlos III of Madrid
2006	Graduated with first-class honours and best bachelor's thesis . 2006
2005	Scholarship for outstanding academic achievement in the course 2005-2006.
1999 and 1998	Finalist in the third and forth editions of the national " Spring Mathematics Contest " held at the University Complutense of Madrid.

Media Appearances

October 2010	"Killer Bots Are Getting Human". John Bohannon. Science. Vol 330. no. 6000. pp. 30-31. Science . http://science.sciencemag.org/content/330/6000/30.2
October 2010	"The Awakening of Conscious Bots: Inside the Mind of the 2K BotPrize 2010 Winner", aigamedev.com . http://aigamedev.com/open/articles/conscious-bot/
September 2010	"Unreal Tournament 2010: Narrowing the Gap between Human and Bot". Surfdaddy Orca. h+ magazine . http://hplushmagazine.com/2010/09/10/unreal-tournament-2010-narrowing-gap-between-human-and-bot/
September 2010	"Un equipo español queda en primer lugar del 2K BotPrize 2010" ("A Spanish team win the 2K BotPrize 2010"). Lektu / Microsiervos. lainformacion.com http://www.lainformacion.com/ciencia-y-tecnologia/tecnologia-general/un-equipo-espanol-queda-en-primer-lugar-del-2k-botprize-2010_eB2nYg5smd9hxlN2WnHWR1/

Talks

March 2011	Guest speaker in the VI Days of Imaginática 2011. University of Sevilla. " <i>Conciencia Artificial en Videojuegos: diseñando máquinas más humanas</i> ". ("Machine consciousness in video games: designing more human-like machines").
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Idioms

Spanish	Native
English	Advanced (6.3/10 Duolingo Proficiency Exam, equivalent to 93/120 in TOELF, 6.8/9 in IELTS or C1 in CEFR)