Jorge Muñoz

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Personal statement

I am a Deep Learning Researcher & Engineer. I started my career in Artificial Intelligence with my degree in Computer Science Engineering, which I graduated with first-class honors in 2006. I continued my education with a Ph.D. in Artificial Intelligence and an MBA. Now I am doing a math degree. I have worked mostly with startups from San Francisco, London and Madrid. Only on remote roles since 2015.

I base my work methodology in 2 principles: keep learning and improve the processes. That is why I spend a lot of time reading and understanding the latest papers in Deep Learning and why I always try to automatize repetitive tasks and define clearly any process.

Education

October 2020 – July 2024 (estimated)	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**. Imitation learning in video games and development of believable non-players characters. I was the main author of several published **papers** in international congress about **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

Freelance Deep Learning Engineer/Researcher. Some example of projects for different clients all over the world:

- **Reinforcement learning** for virtual world generation
- Full prototype of a service to replace of real faces of people in images by fake faces generated with **GANs.**
- Models to predict of stock prices using **wavelets**, **transformers**, **sequence to sequence models** among other things.
- Aesthetics ranking for images.
- 3D cloud point semantic instance recognition.

Keywords: Deep Learning, GANs, NLP, TensorFlow, 3D

Founder at **Serendeepia (Madrid)**

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.

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.

Keywords: Deep Learning, CEO, CTO, TensorFlow, Scrum, Kubernetes, Jenkins, Polyaxon

Remote Machine Learning Engineer/Researcher at **Chute** (**San Francisco, CA, USA**) (Acquired in August 2018).

I was the only engineer in charge of processing the data from social networks (Instagram, Twitter) in real-time to create valuable insights.

I migrated the simple single label image classification model in Caffe to a multilabel model in TensorFlow with TensorFlow Serving. The new model had more labels (+100) and a better precision and recall for every class (>90% accuracy for most of them). I also established a scientific procedure to measure the quality of the models.

I increased the competitive advantage of our product with 2 new features:

- An aesthetic model which was able to score the beautifulness of the images with a state of the art CNN model.
- A model to create a perceptual hash of images using their local and semantic information which was used to find similar images.

Keywords: TensorFlow, TensorFlow Serving, Python, Convolutional neural networks, Deep Learning

Remote contractor as **Machine Learning Researcher** at **Good AI Lab** (**San Jose, CA, USA**).

I was in charge to create **Deep Learning** research projects that run in ClusterOne for promoting and testing the platform. For example:

https://medium.com/clusterone/personalized-medicine-redefining-cancer-treatment-with-deep-learning-f6c64a366fff

Keywords: Deep Learning Research, Machine Learning Platform

Madrid (Spain), June 2022

March 2013 – September 2017	**Android lead developer** in startups in **London** (Quipper, Shopcade) and as a **remote contractor** (Appgree).
	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.
	Keywords: Team Lead, Android, Java, Kotlin
December 2010 – February 2013	**Entrepreneur period**. Startups and side projects with colleagues:

- 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.

Keywords: Entrepreneur, Marketing, Android, Video Games, Java, C++

September 2009 – January 2010	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 neural networks.
	Keywords: Recurrent Neural Networks, C++
October 2007 – September 2011	**Research staff** in training at **University Carlos III of Madrid**. I supervised several bachelor's thesis related with Artificial Intelligence and video games.
	I was rated by the students as an exceptional teacher (2008).
	Keywords: Neural Networks, Java, C++
December 2006 – August 2007	Software developer in Spain in several companies: GTD Ingeniería de Sistemas y Software; Secosol soluciones y domótica.

Research & Publications

Several **papers** in international conferences and **book chapters** (see http://scholar.google.es/citations?hl=es&user=aHsYF-0AAAAJ for more details).

Participation in scientific committee of international conferences (GECCO 2011, IADIS 2009).

List of publications publications:

- https://www.researchgate.net/profile/Jorge_Munoz59
- https://jorgemf.github.io/publications.html

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://hplusmagazine.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/

Madrid (Spain), June 2022

Talks

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

Idioms

Spanish   Native

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

Madrid (Spain), June 2022