

Carlos A. Morales

A resourceful full-stack software developer with hands-on professional experience. I am confident creating or working with complex systems. A philomath. An open source, clean code and best practices enthusiast with a new found passion for cloud computing.

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EXPERIENCE

The University of Sheffield, Sheffield, UK — *Lab demonstrator*

SEPTEMBER 2017 - SEPTEMBER 2019

I provided help and support for undergraduate and MSc students on the practical sessions for Python based courses, i.e.: Text Processing, Natural Language Processing, Biology-Inspired Computing. Besides domain knowledge, this required quick problem solving in culturally diverse environments on the three major OS (Windows, Mac, Linux)

EBCON, Queretaro, MX — *Java developer, tech lead*

MAY 2013 - AUGUST 2015

I was successfully involved in many projects, as follows. On the full life cycles of five Java based solutions for electronic invoicing and one custom email client. I architected several stateful web services clients. I architected and implemented data migration pipelines from legacy systems and from SAP ERP to our in-house implementations. I am proud of my involvement as a tech lead of a team of 7 junior developers during the final eight months of development and later during the implementation stage of a custom ERP software for a medium sized enterprise. My participation was key for the successful delivery of this project qualified as high risk of failure prior to my involvement.

UPEMOR, Jiutepec, MX — *Tech support*

September 2011 - February 2013

I joined the IT department of this university providing technical support at their computer labs to cover my expenses while I was doing my undergraduate studies. My activities involved software installations, computer maintenance, and minor tech support to the students.

GrupoSol/Intermex, Cuernavaca, MX — *Web developer*

January 2008 - September 2010

I developed custom PHP web sites and portals from the ground up. Initially, I was only involved in design and implementation, later I was trusted with infrastructure activities. My work, as the sole developer at

SKILLS

***** Python
**** CUDA
**** GIT
*** JavaScript
*** NoSQL
*** PHP
*** R
*** SQL

Natural Language Processing,
Software Architecture,
Requirements Analysis.

AWARDS

Best poster, Fertility 2019
Joint Conference of the UK
Fertility Societies (ACE, BFS,
SRF)

Best poster, INSIGNEO 2019
The Insigneo Institute for *in silico*
Medicine's Annual
Showcase.

PhD scholarship CONACyT
Mexico's Council for Science
and Technology

LANGUAGES

English - Professional
Spanish - Native

the time, was key in supporting the agency's transition from a print-focused business with minimal web operations to a web-focused AD agency with minimal print activity.

MaranathaMX, Cuernavaca, MX — PHP developer

2002 - January 2008

I self-learned HTML 4.0 and PHP programming and offered my service independently for a few years catering specifically to small business. However, my proudest achievement was developing a larger portal which eventually became the first version of the China-Mexico Chamber of Commerce web portal. This was a three-lingual website/portal when internationalisation was still an exotic area of development.

EDUCATION

The University of Sheffield, UK — PhD Computer Science

SEPTEMBER 2016 - Expected to complete on MARCH 2021

This is an interdisciplinary project in Computer Science and Biology applying Agent-Based Modelling to mammalian reproduction research. I am using FlameGPU, CUDA, and multi core processing in both HPC and commodity hardware.

A one-paragraph executive summary of my PhD, from a technical perspective:

I create computational models where many autonomous decision-making individuals bound by simple low-level rules encoded into the system will interact with each other and with the environment and, hopefully, after enough iterations, complex system-wide high-level behaviour will emerge as an outcome of those interactions.

A product of my PhD, a virtual reality serious game was created out of interest in outreach activities, i.e.: Can we bring this research to the broader audience in a fun and engaging way? This project has been invited for demonstration at a series of public talks "Sex-In-Three Cities" at the Universities of Nottingham, Edinburgh, and the Royal Veterinary College in London, sponsored by the Society for Reproduction and Fertility.

The University of Sheffield, UK — MSc Computer Science

SEPTEMBER 2015 - SEPTEMBER 2016

With a strong focus in Natural Language Processing, for my thesis I applied Latent Semantic Analysis to study the "Textual Alignment of News Blogs".

Polytechnic University of Morelos, MX — BSc Informatics

SEPTEMBER 2010 - JANUARY 2013

ACTIVITIES

- Open Source Software development
- GNU/Linux
- Cloud computing
- Reading
- Travelling
- Road cycling

Projects

gggaps — An Open Source package in R

I recently adopted and became the maintainer of this package. It improves the visual quality of vertically challenged plots produced using ggplot, one of the most popular plotting packages in R. Basically, it eases the creation of subsections on the vertical axis, which is otherwise a non-trivial task when using ggplot. The package is available via CRAN.

<https://r-pkg.org/pkg/gggap>

FertilizationVR — A virtual reality serious game

Take the place of a spermatozoon and face a series of obstacles to fertilise an egg while beating others competing in the same task.

https://cmoralesmx.github.io/FertilizationVR_web/