



# DAVID VILELA

I'm an Engineering PhD with almost ten years of experience in research and software development. Despite I started my career from a purely scientific and academic perspective, after my PhD I decided to shift my focus towards more applied fields, since I felt I was more interested in the practical application parts of problem-solving.

I consider myself an IT enthusiast, and love understanding and automating things. I am particularly interested in new technologies, especially Machine Learning, Distributed Ledger Technologies and Security. I'm a fan of the aerospace industry, Physics and Mathematics, open source code, music, design, LEGO blocks and I'm fascinated by the human brain and how things work.

I have always worked on small and medium-sized teams where every member must take ownership on their projects and be able to work without close supervision. Currently I work for an automotive research center where I'm implementing a sensor managing and recording platform to generate training data for machine learning algorithms. Recently I've started taking a DevOps role, learning about Docker, Kubernetes, Jenkins and the CI/CD cycle, as well as server managing.

Previously I've worked on the development of efficient, real-time collision detection algorithms, multibody simulators applied to virtual assembly and vehicle, machinery and mechanism simulations for hardware-in-the-loop platforms. I have also designed and developed haptic interface hardware and its corresponding control software.

Teaching at the university for four years and writing scientific papers helped me to improve my communication skills, and since I've always loved explaining things to others as well as divulgation, I keep trying to make my tiny contribution through my Youtube channel, telling stories about science, technology and development. I'm fluent in English and native in Spanish and Galician.

## CONTACT & MORE

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[youtube.com/c/DavidVilela0](https://youtube.com/c/DavidVilela0)

## EXPERIENCE

2020 - Present

### Machine Learning Platform Engineer

*CTAG, Automobile Technological Center of Galicia*

Developing a sensor recording, managing, syncing and decoding platform to generate training data for autonomous vehicle machine learning algorithms. Learning DevOps.

2019 - 2020

### Research Support Technician

*Mechanical Engineering Laboratory, University of A Coruña*

Researched and validated a volumetric force model based on sphere discretizations from the Computer Graphics Group. Wrote two research papers based on my dissertation's results and those validations.

2014 - 2018

### Predoctoral Researcher & PhD Teaching Assistant

*Mechanical Engineering Laboratory, University of A Coruña*

Researched and implemented a multibody real time simulator capable of handling conforming contacts using a precise collision detection algorithm and a volumetric force model. Developed a VR haptic feedback glove device, from electronics design to control software. Taught Solid Works and CAD. Collaborated with the Computer Graphics Group in the University of Bremen during an international stay.

2012 - 2014

### Research Assistant

*Mechanical Engineering Laboratory, University of A Coruña*

Developed a real-time multibody vehicle simulator for hardware-in-the-loop platforms to assess vehicle dynamics behaviour. Developed a multibody algorithm benchmarking and ranking website oriented towards international scientific collaboration.

## EDUCATION

2014 - 2018

### PhD in Industrial and Naval Engineering

*University of A Coruña*

2012 - 2013

### Industrial and Naval Technologies Research M. Eng

*University of A Coruña*

2003 - 2011

### Industrial Engineering B. Eng + M. Eng

*University of A Coruña*

## COURSES, CERTIFICATES AND ACTIVITIES

2021

DevOps with Docker, Jenkins, Kubernetes, Git and CI/CD, Coursera

Hands-On Test Driven Development with Python, Coursera

Jenkins, From Zero To Expert: Become A Jenkins Master, Coursera

SOLID and Clean Code principles. Write quality code, Coursera

2014

C1 Certificate in Advanced English, Cambridge School

2011

Introduction to Artificial Intelligence, Stanford University Online

Introduction to Machine Learning, Stanford University Online

Child Education and Support Volunteering, Nepal Sonríe NGO

2003

Coastal Skipper, Nautical and Fishing School of Ferrol

## TECHNOLOGIES

My current main technologies are **C++** and **Python**, and I regularly work with **Bash**, **Flask**, **HTML/CSS** and **JavaScript**. In the past I've used **Fortran**, **Matlab/Octave** and **Django**. I've been developing mostly under **GNU/Linux**, where I am the most comfortable, but I spent my two first research years in **Windows** and I have also developed under **Mac OS** for a few months.

I usually fiddle with **Raspberry Pis**, and from time to time also with **Arduinos**, **ESP32** and **ESP8266**. I've also developed some small home projects using **Python**, **Bash**, **JavaScript/Node**, **Django**, **REST APIs**, **Websockets**, **SQLite**, **HTML/CSS** and **Qt** among others. I'm familiar with web development, graphic design, 3D modeling, scientific writing and audio/video edition.