Francisco Costela, PhD

Data Scientist

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Portfolio *francisco-costela*

Professional summary

Detail-oriented, critical thinking, and logical problem solver bringing expertise in data science, machine learning, eye tracking, biostatistics, and computer vision technologies. I have a strong passion to work with data, run quantitative analysis, and build predictive models. 4+ years professional programming. Technical literacy and versatile project management.

Relevant skills

Coding	Adept at Python, Matlab, Stata, Jupyter. Knowledge of C++, Java, Github link
AI/ML	Scikit-Learn, Pandas, Numpy, Keras, TensorFlow, Natural Language Processing
Databases	SQL, Excel - Web development mySQL, HTML, CSS, PHP
Graphics	OpenCV, Plotly, Seaborn, Illustrator, Powerpoint, Psychtoolbox, Tableau
Research	20 peer-reviewed articles Google Scholar- 27 verified reviews Publons link
Communication	21 contributions to international meetings, including ICMLT, ARVO, SFN, VSS
Data Science	Statistical, Mathematical and Data Modeling, Scientific and Computing Programming, Experimental Design Testing, Machine Learning

Employment

2019-present **Research Programmer**, ***Harvard Medical School***, Boston, MA.

- Implemented feed-forward neural networks to predict hazard detection in driving videos using features from eye tracking data
- Conducted NLP analyses to evaluate cognitive and visual function. Gathered crowdsourcing responses from auditory descriptions using Amazon Mechanical Turk
- Developed recurrent neural (LSTM) networks and Taylor series methods to boost prediction of gaze landing on gaze-contingent paradigms
- Created a new Quality of Life instrument to evaluate functional vision from a population of 500 patients with retinitis pigmentosa (RP) using Rasch analysis

2015-present **Data scientist**, *as Sr Fellow at* ***Schepens Eye Research***, Boston, MA.

- Built a freely open-access eye-movement database watching movies. Link
- Created clusters and archetypes (unsupervised learning) to classify visual functional fields and correlate with hereditary patterns in a population with RP
- Applied gaze tracking and video processing to identify the preferred retinal locus used by people with low vision while watching video
- Developed visual rehabilitation techniques based on zoom/bubble magnification and dynamic content guide for people with macular degeneration and hemianopia

2011-2014 **Researcher**, ***Barrow Neurological Institute***, Phoenix, AZ.

- Applied electrophysiology with macaques to map eye movements in the visual cortex
- Developed software and interface to import, process, and plot eye tracking data
- Wrote a thesis on the roles of fixational eye movements in perception, cognition, and oculomotor control developing psychophysics experiments

2009-2010 **Medical imaging**, *as Researcher at Pablo de Olavide University*, Seville, Spain.
- Analysed fiber tract and DTI (Diffusion tensor imaging) from patients with dementia
- Processed magnetic resonance image data using Freesurfer and FSL tools

2009 **Medical imaging**, *as Trainee at FMRI* ***Oxford University***, Oxford, UK.
- Detected the stria of Gennari (area in the visual cortex) in brain MRI scans

2007–2008 **Senior Programmer**, *Ebrisa*, Chicago, USA, MyEclipse, J2EE, Struts, Hibernate, MySQL, Css, Taglibs, XML.

2006–2007 **Junior Programmer**, *Telefonica I+D*, Madrid, Spain, JAVA Technology, J2EE, JABX, SOAP, XML, Javascript, Beanshells, PJTools, Oracle Database.

2005–2006 **Junior Programmer**, *Ocean Lab*, Edinburgh, UK, Design of an autonomous underwater vehicle. Sonar management, C++, OpenCV Link.

2005 **Trainee**, *MADOC*, Granada, Spain, Maintenance and development of applications involving database access to Oracle and Access from Delphi and Jbuilder.

Education

2011-2014 **PhD in Neuroscience**, *Arizona State university*, Tempe, AZ, USA.

2009-2010 **MSc in Neuroscience**, *Pablo de Olavide University*, Seville, Spain.

2008-2009 **MSc in Biomedical Engineering**, *Oxford University*, Oxford, UK.

2000-2006 **BSc Computer Engineering**, *Granada and Heriot-Watt Univ.*, Edinburgh, UK.

Other work and volunteering experience

2017-present **"Vision. Eye Movements"**, *Lecturer*, Harvard Medical School, 2 semesters.

2015-present **"IMP and IMFAHE programs"**, *Mentor*, Spain-USA, 14 grad students.

2013-2014 **"Anatomy and Physiology"**, *Lecturer*, Arizona State University, 3 semesters.

2011-2012 **"Ask a biologist"**, *GPSA Volunteer*, Arizona State University.

2009-2010 **"Spanish"**, *Spanish Official Helper*, Oxford Language Centre.

Courses

2019 **Complete Data Science bootcamp**, *Udemy*.

2017-2018 **Successful grant writing - Effectively communicating**, *Harvard Catalyst*.

2015-2016 **Certificate in Applied Biostatistics**, *Harvard Catalyst*.

2015 **Fundamentals of Clinical and Translational Research**, *Harvard Catalyst*.

2013 **Machine Learning**, *Coursera Stanford University*.

Languages

Fluent English - Native Spanish - Basic Mandarin

Hobbies

I love boardgames and organize a weekly Board game meetup in Boston (BoardGameGeek profile). I am physically active - enjoy lifting and Brazilian jiu-jitsu. In addition, I love to travel - I have lived in eight cities (Granada, Edinburgh, Madrid, Chicago, Oxford, Seville, Phoenix, and Boston) and visited nearly 50 countries. I'm a bit of an adventurer and it's time for my next adventure.