

de Frutos José Manuel

COMPUTER SCIENTIST · MATHEMATICIAN

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Experience

Carlos III University

RESEARCHER DL MODEL APPLIED TO FILTERING METHODS

Madrid, Spain

February 2023 - Today

- Development of Bayesian filtering methods using Deep Learning methods
- Particle Filter, Bayesian filtering, deep learning, generative model, transformers
- Papers publications (AISTATS 2024)
- pyTorch, Jax, Python, Julia

Devo inc

R&D SOFTWARE ENGINEER: "INTERACTIVE SEARCHES" TEAM FOR LOGS MANAGEMENT.

Madrid, Spain

January 2020 - March 2023

- Performed and improve handling of queries: JS (ES6, Nodejs, Webpack), Java8 (Spring Boot). Increase in the processing speed of queries up to x100.
- Implemented new mathematical operations for logs management: JS (ES6, Nodejs, Jest, Mocha), Sql.
- Create data pipelines capable of handling petabytes of data: Python3
- Solved more than 100 incidents, platform documentation : Jira, Confluence, git, CI/CD.
- Design of a SQL-like language for data extraction using ANTLR

Cadiz University

GRADUATED RESEARCHER

Cadiz, Spain

June 2019 - September 2019

- Monteiro–Baaz operator and its deduction in multivalued logics.

Institut de Robotica i Informatica Industrial (CSIC-UPC)

GRADUATED RESEARCHER

Madrid, Spain

November 2018 - May 2019

- Implemented of new symmetry detection algorithms for robotics, up to 10 times faster: C/C++, Matlab.

European Organization for Nuclear Research (CERN)

SUMMER INTERN

Geneva, Switzerland

July 2018 - August 2018

- I was one of 42 selected from more than 2000 applicants.
- Study and implementation of how to convert puppet bolt into a server application, in order to achieve persistence of connections: Ruby, Python.
- Study and learn how a Large Scale Computing Infrastructure works, up to 40.000 Linux servers: Puppet (Mcollective, Puppet Bolt), Ansible.

Instituto of Mathematical Sciences (ICMAT)

GRADUATED RESEARCHER

Madrid, Spain

June 2018 - September 2018

- Developed of fluid dynamics algorithms, improvement of already existing algorithms for the calculation of speeds and temperatures, improvement obtained up to x100: Python3 (Dedalus, PyMPI).
- Followed courses on: Quantum information theory and Computer assisted proofs in analysis, 50 hours.

European Southern Observatory (ESO)

DATA ENGINEER INTERN

Paranal, Chile

July 2017 - July 2018

- Installed Datalab for Observatory Logs, Ability to store more than 1 petabytes per day: Elasticsearch, Cassandra, Elassandra, Kairosdb.
- Servers orchestration: Puppet.
- Installed and managed Data Analytic tools, ELK: Jupyter, Grafana, Kibana.
- Set up security architecture: Reverse-Proxy (Nginx), OpenScap, OpenVAS, Seccubus, Dagda.
- Coded anomaly detection algorithms for the detection of instrumental failures of the observatory: Python3 (Pandas, TensorFlow, astropy).
- Performed Data ingestion, extraction and load (ETL), Boosted by 1000x: Python3, Bash.
- Data Visualization: Python3 (Matplotlib, Bokeh, Plotly).
- Advice on the new Hardware acquisition, a budget of 40K Euros

Education

Autonomous University of Madrid

MASTER DEGREE IN MATHEMATICS AND APPLICATIONS

Madrid, Spain

September 2018 - July 2020

- Stochastic processes, Advanced statistics, Numerical methods, Advanced PDEs, Geometry.
- Master's thesis on the mathematical foundations of image segmentation.
- Got the University Scholarship "AYUDAS PARA MATRÍCULA DE ESTUDIOS DE MÁSTER-UAM 2018". Got one of the two Scholarship available for mathematics.
- Grade: 8.71/10

Autonomous University of Madrid

DOUBLE DEGREE MATHEMATICS AND COMPUTER SCIENCE ENGINEER.

- Foundations of mathematics: PDEs, Numerical Methods, Statistics, Artificial intelligence, Algorithm analysis.
- Internacional exchange program September 2015 - June 2016, Ecole Polytechnique Paris.
- Programming languages: C/C++, Java, Javascript, Php, Sql, R, Python
- Grade in mathematics: 7.71/10, grade in computer science: 8.31/10.0

Madrid, Spain

September 2012 - June 2018

Skills

Languages Spanish (Native), French (Native), English (Toefl C1 - 101/120)

Conferences

Young Francophone Science Talent Week.

Paris, France

10 MIN PRESENTATION, CONFERENCE FORMAT. PRESENTED EUROPEAN SOUTHERN OBSERVATORY (ESO) DATALAB PROJECT.

[HTTPS://WWW.PALAIS-DECOUVERTE.FR/FILEADMIN/FILEADMIN_CSI/FICHIERS/VOUS-ETES/PROFESSIONNEL/PRESSE-MEDIA/CP/SEMAINE_JTALENTS_FRANCOPHONES_2018_VF_UNIVERSCIENCE.PDF](https://www.palais-decouverte.fr/fileadmin/fileadmin_CSI/fichiers/VOUS-ETES/PROFESSIONNEL/PRESSE-MEDIA/CP/SEMAINE_JTALENTS_FRANCOPHONES_2018_VF_UNIVERSCIENCE.PDF)

01/12/2018 - 07/12/2018

CERN Openlab projects presentation

Geneva, Switzerland

7 MIN PRESENTATION, CONFERENCE FORMAT. PRESENTED NEW CONFIGURATION MANAGEMENT TOOL OF THE IT-CM-LCS GROUP.

[HTTPS://INDICO.CERN.CH/EVENT/727275/TIMETABLE/?PRINT=1&VIEW=NICECOMPACT](https://indico.cern.ch/event/727275/timetable/?print=1&view=nicecompact)

20/08/2018

Publications

- Jose Manuel de Frutos Porras. (2018, December 5). Parallel Task Execution. Zenodo. <http://doi.org/10.5281/zenodo.1971291> de Frutos Porras, J. M., and Traylen, S.. Parallel Task Execution. Technical paper about my work done at CERN. It can be found in the general purpose open access repository created by cern, Zenodo. Area of research: Distributed systems, massive data processing, applied computer science.

Licenses and certifications

Big Data Analysis with Scala and Spark.

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE (EPFL).

June 2020 - July 2020, 30 hours of lectures + final exam

Summer's Seminar on Big Data (June 2016).

AUTONOMOUS UNIVERSITY OF MADRID.

Madrid, Spain.

June 2016 - July 2016, 30 hours of lectures and workshops.

Summer's Seminar on Soft Computing (June 2019).

UNIVERSITY OF CADIZ.

Cadiz, Spain.

June 2019 - July 2019, 5 hours of seminars

Extracurricular Activity

Julia open source projects developer. Work on projects Stats and JuliaCore

JULIALANG

Madrid, Spain

June 2020 - Today

PAUTA Association (psychopedagogy of autism and associated disorders)

LEISURE ACTIVITIES VOLUNTEER

Madrid, Spain

August 2016 - Today

Organization Assistant And Event Presenter.

CIBEM (IBERO-AMERICAN CONGRESS OF MATHEMATICS EDUCATION)

Madrid, Spain

June 2017 - July 2017