Enrique Frias-Martinez

Contact Information

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Goal

I specialize in utilizing digital data for creating and refining pioneering AI-based solutions and in creating AI strategies aligned with business goals. My proficiency encompasses leading dedicated teams of research engineers to successfully execute and deliver initial proofs of concept, as well as alpha and beta versions of cutting-edge AI applications. This includes contributions to EU-funded projects and internal product development. My experience spans a diverse range of applications, such as educational AI systems (GenAI), anomaly detection, customer segmentation, socioeconomic prediction, movement pattern analysis or tourism trend modeling.

Skills

Machine Learning (supervised and unsupervised), Python, Scikit-learn, XGBoost
Temporal Series Analysis, Prophet, AutoARIMA
Deep Learning, Keras, LSTM, CNN, LLM, OpenAI API, LangChain, RAG
Managing product innovation teams, Writing EU proposals, Managing EU Projects
Applications: Medical Image, Socioeconmic predictions, AI in telco, AI in Education.

Current Position

Research Institute for Innovation in Education(UNIR-iTED), Madrid **June 2023 -**
Director of the IBM Chair on Data Science in Education, Principal Researcher

Leading design and research in AI and GenAI applied to Education. Design and research in LLMs chatbots, including Retrieval Augmented Generation tools, as student tutors. Design and deployment of AI tools: student abandonment, student asistantce prediction, student personalization of learning, LLMs for personalization. Management of EU projects.

Previous Profesional Experience

Universidad Camilo Jose Cela (UCJC), Madrid, Spain **April 2021 - June 2023**
Director of the Master in Artificial Intelligence at UCJC

Professor, School of Computer Science. Focusing on AI, ML, Applied Machine Learning (supervised and unsupervised approaches) and Temporal Series Analysis. Proficient in delivering both online and traditional courses. Designed the MSc degree in AI/Data Science from scratch.

Telefonica Digital (Telefonica I+D), Madrid, Spain **April 2008 - March 2021**
Senior Applied Researcher, Core Innovation, AI Research Group

Lead research, prototyping and alpha versions in AI user-centered products including mobility, user modelling (gender, socieconomics, age, points of interest, routes), AI for social good and urban computing. Manage focused groups of engineers, and PhDs for the creation of new services. AI evangelist for the Telefónica Group. Co-creation of new products with business units and/or transfer algorithms and results to the business groups. Patenting new methods. Presenting to the media and other third parties (public institutions, international agencies) the results and social benefits of AI. Projects:

AI for IoT and Telco Networks - Client: TEF Tech Designed LSTM for identification of network status for maintenance prediction. Designed clustering techniques (GMM, SOM, spectral) for anomaly detection and behavioral modeling of Movistar Car.

Modeling Migration - Client: Telefonica Colombia Designed and implemented mobility model (clustering, gravitational, POI, radiation) over cell phone traces to characterize migrant behavior for the Venezuela-Colombia crisis. Supervised ML identified migrants (70% accuracy) and characterized routes and their asimilation.

Advanced Socioeconomic and Unemployment Prediction I developed cutting-edge ML models aimed at predicting socioeconomic levels and unemployment rates for both geographical areas and individuals. Prediction accuracy up to 90%. Systems were integrated into personalization platform, enhancing Telefónica's marketing strategies.

COVID19 Models - Client: LUCA Telefonica Data Unit Used mobility data from cell phone traces to run epidemiological models for prediction of the evolution of the pandemic. Results offered to the SEDIA as part of the Telefonica offer.

Drivies - Client: Intrapreneurship product for Car Insurance
Created a risk estimation model for drivers based on speed, points of interest, routes, accelearation and decelarion built on top of standard risk model to improve risk scoring. The model identified 5% more extra risky drivers.

Tourists Estimation - Smart Steps O2 UK
Estimation and prediction of number of tourists based on the roaming information of the network, including origin, areas of visits, time of stay.

University of California, Los Angeles (UCLA) , CA, USA **Sep 2006 - March 2008**
Graduate Student Researcher, Biomedical Engineering Department
Quantification of MR Spectroscopy cerebral metabolites using Machine Learning.

Brunel University, London, UK **Sep. 2003 - Sep. 2006**
AHRB Research Fellow, Department of Information Systems and Computing (DISC)
Research leader in a project that modeled user behavior with Machine Learning techniques when interacting with digital libraries. Personalization of the interaction using psicological traits.

New York University (NYU), New York City, NY, USA **Sep. 2001 - Sep 2003**
MEC-Fulbright Postdoctoral Researcher.
Courant Institute of Mathematical Sciences, Department of Computer Science.
Leading research in AI, ML and user modeling for improving user experience for web interaction. Prediction of pages and topics of interest to optimize user experience.

Education

University of California, Los Angeles (UCLA), Los Angeles, CA **Dec. 2007**

M.Sc. Biomedical Engineering. GPA 4.0. Biomedical Engineering Department.

Universidad Politecnica de Madrid, Madrid, Spain **Dec. 2001**

Ph.D.(Doctor) in AI and Computer Science, Highest Honors " Cum Laude"
- Best Ph.D. Thesis Award School of Computer Science 2001

Publications

Metrics (as of October 2023)
Number of Publications: 125, Total number of citations (google schoolar): 5197
h-index: 37, i-10 index: 67
Google Scholar profile: https://scholar.google.com/citations?user=R3GAd3sAAAAJ

Patents

Number of Patents: 13, List: http://enriquefrias-martinez.info/patents

Media

Media apperances and Interviews: https://enriquefrias-martinez.info/media