Pedro Lara-Benítez

Machine Learning Researcher

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Python, Java, C, R

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Research-focused professional with strong programming and mathematical skills in algebra and statistics. Hands-on experience providing valuable insights via data analytics and advanced data-driven methods. Proven success developing high quality code with detailed documentation to support reproducible research. Passionate about core machine learning principles, data sciences, deep learning, engineering, and research. Track record of conducting cutting-edge research on distributed artificial intelligence to develop state-of-the-art solutions for real-world problems.

Experience

- **Bank of America** — London, UK
  Quantitative Developer — *May 2021 - Present*
- **University of Seville** — Seville, Spain
  Machine Learning Researcher — *October 2018 - May 2021*
  - Carry out experiments regarding deep learning, interpret results, and produce a written paper with conclusions of study.
  - Demonstrate expertise in the state-of-art techniques of the field.
  - Reviewed and published papers while acting as a PhD student.

  Technologies: python, tensorflow, keras, pytorch, numpy, sci-kit, matplotlib, latex, AWS.
  Theory: Deep Learning, Time series forecasting, Online learning, Data stream, and Computer vision.
- **Additional Experience** — Seville, Spain
  Freelance Software Developer — *2017 - 2019*
  - Android App for MSIG Smart Management and web information system for BBA Medical Centre.

Technical Proficiencies

- **Python:** keras, tensorflow, pytorch, numpy, xgboost, sci-kit, pandas, river, matplotlib, flask ...
- **Other technologies:** AWS, azure, git, docker, databases, linux ...
- **Machine Learning:** CNN, RNN, Transformers, deep learning, time series, online learning, object detection ...

Education

- **University of Seville** — Seville, Spain
  PhD in Computer Science - Machine Learning — *Sept. 2019 – Present*
  - Researching about data science, machine learning and artificial intelligence. Mainly focused on deep learning, time series analysis, online learning and object detection.
- **University of Seville** — Seville, Spain
  M.Sc in Software Engineering: Cloud, Data Science & IT Service Management - 9.26/10 — *Sept. 2018 – Jun. 2019*
  - Took selective courses on: Data Engineering, Machine Learning, Data visualisation techniques, Analysis of unstructured information, Big Data, Data Science.
  - (Thesis title) Asynchronous framework for the application of Deep Learning to streaming data.
- **Middlesex University** — London, UK
  [Erasmus year abroad] B.Sc in Computer Science — *Sept. 2017 – Jun. 2018*
  - Took selective courses on: Open Source Software, Quantum Information Theory and Artificial Intelligence.
- **University of Seville** — Seville, Spain
  B.Sc in Computer Science - Software Engineering - 8.55/10 — *Sept. 2014 – Jun. 2018*
  - Took courses such as: Statistics, Analysis and Design of Data structures and Algorithms, or Artificial Intelligence.
  - (Thesis title) Biomedical data analysis with deep learning.

Following sections items are clickable for references.

Research publications

- Lara-Benítez, P., Gallego-Ledesma, L., Carranza-García, M., and Luna-Romera, J. M. "**Evaluation of the Transformer Architecture for Univariate Time Series Forecasting.**" Under review in the XIX Conference of the Spanish Association for Artificial Intelligence (CAEPIA), May 2021.
- Carranza-García, M., Lara-Benítez, P., and Riquelme, J. C. "**Feature selection on spatio-temporal data for solar irradiance forecasting.**" Under review in the 16th International Conference on Soft Computing Models in Industrial and Environmental Applications (SOCO 21), May 2021.
- Carranza-García, M., Lara-Benítez, P., García-Gutiérrez, J., and Riquelme, J. C. "**Enhancing Object Detection in Autonomous Vehicles by Optimizing Anchor Generation and Addressing Class Imbalance.**" Neurocomputing, vol 449, p. 229-244, DOI:10.1016/j.neucom.2021.04.001, Apr 2021.
- Lara-Benítez, P., Carranza-García, M., and Riquelme, J. C. "**An Experimental Review on Deep Learning Architectures for Time Series Forecasting.**" International Journal of Neural Systems, vol. 31, no 03. p. 2130001, DOI:10.1142/S0129065721300011, Feb 2021.
- Carranza-García, M., Torres-Mateo, J., Lara-Benítez, P., and García-Gutiérrez, J. "**On the performance of one-stage and two-stage object detectors in autonomous vehicles using camera data.**" Remote Sensing, vol. 13, no 1, p. 89, DOI:10.3390/rs13010089, Nov 2020.
- Lara-Benítez, P., Carranza-García, M., Martínez-Álvarez, F, and Riquelme, J. C. "**On the performance of deep learning models for time series classification in streaming.**" 15th International Conference on Soft Computing Models in Industrial and Environmental Applications (SOCO 2020), vol. 1268, pp 144-154, Springer International Publishing, DOI:10.1007/978-3-030-57802-2_14, Aug 2020.
- Lara-Benítez, P., Carranza-García, M., Luna-Romera, J. M., Riquelme, J. C. "**Temporal Convolutional Networks Applied to Energy-Related Time Series Forecasting." Applied Sciences.** , vol. 10, pp 2322, DOI:10.3390/app10072322, March 2020.
- Lara-Benítez, P., Carranza-García, M., García-Gutiérrez, J., and Riquelme, J. C. "**Asynchronous dual-pipeline deep learning framework for online data stream classification.**" Integrated Computer-Aided Engineering, vol. 27, no. 2, pp. 101-119, DOI:10.3233/ICA-200617, Feb 2020.

Personal Projects

- ADLStream: A python open source library for online learning with Deep Learning models.
- Contribution to TensorFlow Addons with Echo State Network (ESN) implementation.

Not clickable anymore.

Awards

- **Winner of "Atmira Stock Prediction" challenge in the UniversityHack 2021 Datathon, the largest data analysis competition in Spain.** 2021
  Cajamar Data Lab
- **Selected as one of the top 30 computer-science pre-doctoral student nationwide for a 4-year research fellowship (FPU).** 2020
  Ministry of Science, Innovation and Universities; Government of Spain.
- **Winner of OpenWebnars' Prize and 2nd Prize in Start-up Hackathon "Hack for good".** 2017
  Think Big, Fundación Telefónica
- **Finalist Circular Economy Start-up contest.** 2016
  GO APP! by Google
- **1st Prize in Code Competition "Everis Codefest Sevilla".** 2016
  Everis

Languages

- **Spanish** (Native), **English** (Advance C1), **Italian** (Basic B1)