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UK settled status

Elizabeth Fons

Education

- 2021 **PhD in Computer Science / Marie Curie Fellow**, *Department of Computer Science, University of Manchester in collaboration with AllianceBernstein, UK.*
Advisers: Profs. John Keane and Xiao-jun Zeng.
Thesis: Machine learning applications on time series data for systematic investing.
- 2016 **Licenciate (BSc+MSc) in Physics**, *University of Buenos Aires, Argentina.*

Research Experience

- 2016 - 2019 **Research associate at AllianceBernstein**, London, UK.
Worked on machine learning applications to improve asset allocation of smart beta strategies.
- 2019 **Visiting student at Aarhus University**, Aarhus, Denmark.
(3 months) Project: Deep neural networks for stock market prediction.
- 2015 **Visiting student at Max Planck Institute for Physics**, Munich, Germany.
(9 months) MSc thesis: Improvement of event selection of W-bosons.
- 2013 **Undergraduate researcher at CERN**, Geneva, Switzerland.
(2 months) Project: Worked on pattern recognition for muon identification.

Publications

- 2021 **Adaptive Weighting Scheme for Automatic Time-Series Data Augmentation**
[URL] E. Fons, P. Dawson, X. Zeng, J. Keane, A. Iosifidis. *In review.*
Keywords: LSTMs, CNNs, automated data augmentation, sample-adaptive policy, time series.
- 2021 **Evaluating data augmentation for financial time series classification**
[URL] E. Fons, P. Dawson, X. Zeng, J. Keane, A. Iosifidis. *In review.*
Keywords: Data augmentation, noisy time series, stock market.
- 2021 **Augmenting transferred representations for stock classification**
[URL] E. Fons, P. Dawson, X. Zeng, J. Keane, A. Iosifidis.
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2021.
Keywords: Data augmentation, transfer learning, neural networks, automated trading.
- 2020 **A novel dynamic asset allocation system using Feature Saliency Hidden Markov models for smart beta investing**
[URL] E. Fons, P. Dawson, J. Yau, X. Zeng, J. Keane.
Expert Systems with Applications.
Keywords: Hidden Markov models, feature selection, factor investing, dynamic asset allocation.

Awards

- 2018 **Google Travel and Conference Grant**, *Travel allowance to attend the 35th International Conference on Machine Learning (ICML), Stockholm, Sweden (approx. USD 1000).*
- 2016 **Marie Curie Early Stage Researcher Fellowship**, *3-years scholarship (approx. USD 265K).*
- 2013 **CERN Summer Student scholarship**, *2-months scholarship (approx. USD 6.5K).*

Computer and Technical Skills

OS Linux and macOS.

Languages Python, C/C++, SQL, \LaTeX .

- o **Proficient:** Python (PyTorch, scikit-learn, NumPy, Pandas, SciPy).
- o **Familiar:** C/C++, bash, git, scripting, experience with cluster batch scheduling.

Machine Learning Neural networks, sequential models (hidden Markov models, LSTM/GRU networks), Generative Adversarial Networks (GAN), transfer learning and data augmentation for time series data, reinforcement learning, data analysis and visualization.

Mathematics Linear algebra, vector calculus, probability theory, statistics.

Teaching

2020–2021 **Graduate Teaching assistant**, Computer Science Department, University of Manchester.

- o COMP11120: Mathematical Techniques for Computer Science.
- o COMP16321: Programming 1.
- o COMP13212: Data Science.

2013–2015 **Undergraduate Teaching assistant**, Physics department, University of Buenos Aires.

Assisted in teaching laboratory courses on mechanics, electromagnetism and optics. Received 4.65/5 in student evaluations.

Outreach and Volunteering Activities

2012–2014 **Science communicator**, *Popularization of Science Program, University of Buenos Aires.*

Participated in several activities including the Long Night of Museums, Open Physics Week and as Academic Volunteer Tutor, giving training courses to high school teachers in the use of notebooks as part of the "Conectar-Igualdad" National Plan.

Languages

Spanish **Native**

English **Proficient**

French **Elementary**