

Jose Roberto Ayala Solares

Machine Learning Scientist

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SKILLS & COMPETENCES

Exploratory Data Analysis



Communication



Predictive Modeling



R



Quantitative Analysis



Python



Machine Learning



SQL



Deep Learning



MATLAB



WORK EXPERIENCE

Machine Learning Scientist

The George Institute for Global Health - University of Oxford

10/2017 – Present

Oxford, United Kingdom

- Employing and developing machine and deep learning algorithms that can find patterns in large multi-modal data.
- Evaluating and implementing innovative strategies for managing the healthcare challenges facing the world in the 21st century.

Contact: Dr. Kazem Rahimi – kazem.rahimi@georgeinstitute.ox.ac.uk

Postgraduate Researcher

The University of Sheffield

10/2013 – 09/2017

Sheffield, United Kingdom

- Improving machine learning algorithms for modeling and analysis of environmental systems using NARX models.
- Developing a package in the R programming language for construction, validation and testing of NARX models.
- Working with space weather data for the prediction of terrestrial magnetosphere activity.
- Working with oceanographic data for the analysis and forecasting of the Atlantic Meridional Overturning Circulation.

Contact: Dr. Hua-Liang Wei – w.hualiang@sheffield.ac.uk

EDUCATION

Ph.D. in Automatic Control and Systems Engineering

The University of Sheffield

10/2013 – 09/2017

Sheffield, United Kingdom

Data Science Specialization

Johns Hopkins University on Coursera [🔗](#)

09/2014 – 05/2015

M.S. in Applied Mathematics and Computational Science

King Abdullah University of Science and Technology

08/2009 – 12/2011

Thuwal, Saudi Arabia

B.S. in Mechatronics Engineering

Instituto Tecnológico y de Estudios Superiores de Monterrey

08/2004 – 12/2008

Mexico City, Mexico

PROJECTS

Deep Medicine Project (10/2017 – Present) [↗](#)

- Using and analysing some of the largest and most complex biomedical datasets that have ever been collected to generate insights into complex disease patterns, risk trajectories and treatment effects.

Development of a package in R for artificial organic networks (05/2017 – Present) [↗](#)

- Developing a package in the R programming language for the recently developed artificial organic networks technique.
- Version 0.2.0 currently available on GitHub.

TEACHING EXPERIENCE

Mathematics and Data Modeling

The University of Sheffield

01/2014 – 05/2017

Sheffield, United Kingdom

- Intermediate level course that aims to develop student skills in the theory and application of core mathematics tools required for systems engineering and the application of these in system simulation and data-based modeling.

Contact: Dr. Hua-Liang Wei – w.hualiang@sheffield.ac.uk

Numerical Methods for Engineers

Instituto Tecnológico y de Estudios Superiores de Monterrey

05/2012 – 06/2013

Mexico City, Mexico

- Intermediate level course that uses analysis and mathematical thinking to solve complex engineering problems through the use of numerical methods and computational tools. The course implemented the use of the Acadox educational platform for the first time in Latin America.

Contact: Rodrigo Regalado García – rregalad@itesm.mx

Python Programming for Robotics

Instituto Tecnológico y de Estudios Superiores de Monterrey

05/2012 – 06/2013

Mexico City, Mexico

- Introductory level course that uses analysis and mathematical thinking to solve complex problems in robotics through the use of the Python programming language.

Contact: Rodrigo Regalado García – rregalad@itesm.mx

LANGUAGES

Spanish

Native or Bilingual

English

Native or Bilingual

Esperanto

Upper-intermediate

French

Beginner

PUBLICATIONS

Ph.D. Thesis

Data Mining and Machine Learning for Environmental Systems Modelling and Analysis [↗](#)

Author(s)

Ayala Solares, J. R.

2017

University of Sheffield

Article

Modelling and prediction of global magnetic disturbances in near-Earth space: A case study for Kp index using NARX models [↗](#)

Author(s)

Ayala Solares, J. R., H.-L. Wei, R. J. Boynton, S. N. Walker and S. A. Billings

2016

Space Weather, DOI: 10.1002/2016SW001463

Article

A novel logistic-NARX model as a classifier for dynamic binary classification [↗](#)

Author(s)

Ayala Solares, J. R., H.-L. Wei and S. A. Billings

2017

Neural Computing and Applications, DOI: 10.1007/s00521-017-2976-x

Article

Nonlinear model structure detection and parameter estimation using a novel bagging method based on distance correlation metric [↗](#)

Author(s)

Solares, J. R. A. and H.-L. Wei

2015

Nonlinear Dynamics, DOI: 10.1007/s11071-015-2149-3

PUBLICATIONS

Article

A New Distance Correlation Metric and Bagging Method for NARX Model Estimation [↗](#)

Author(s)

Solares, J. R. A. and H.-L. Wei

2014

The University of Sheffield Engineering Symposium
Conference Proceedings Vol. 1, DOI:
10.15445/01012014.31

Conference Paper

Optimal power allocation of a sensor node under different rate constraints [↗](#)

Author(s)

Ayala Solares, J. R., Zouheir Rezki, M-S. Alouini

2012

IEEE International Conference on Communications (ICC),
2012, DOI: 10.1109/ICC.2012.6363758

Conference Paper

Optimal power allocation of a single transmitter-multiple receivers channel in a cognitive sensor network [↗](#)

Author(s)

Ayala Solares, J. R., Zouheir Rezki, M-S. Alouini

2012

IEEE International Conference on Wireless Communications
in Unusual and Confined Areas (ICWCUCA), 2012, DOI:
10.1109/ICWCUCA.2012.6402479

Master Thesis

Optimal Power Allocation of a Wireless Sensor Node under Different Rate Constraints [↗](#)

Author(s)

Ayala Solares, J.R.

2011

King Abdullah University of Science and Technology

INTERESTS

AI

Data Mining

Data Visualisation

Deep Learning

Machine Learning

Keras

TensorFlow

Open Source

Reading

Research & Development