Ivomar Brito Soares

Curriculum vitae

Employment History

July 2020 – Present

TradersClub, São Paulo, Brazil

Machine Learning Engineer — Data Scientist Leader

TradersClub is a platform of information and intelligence in the financial market. Main projects:
- Revenue forecasting using time series analysis.
- Analyzing customer churn.
- Sentiment analysis.

April 2020 – June 2020

In Forma Software, Recife, Brazil

Researcher — Machine Learning Engineer — Data Scientist Leader

In Forma is a specialist in information technology in the energy sector. I am acting as a team leader for both projects listed below:
- Real-time risk map based on Machine Learning (ML) applied in predictive maintenance.
- Intelligent predictive maintenance system based on automation with ML of the electrical testing process in substation equipment without sensing.

August 2017 – Mar 2019

Anchor Loans, Los Angeles, USA

Machine Learning Engineer — Data Scientist (Remote)

Worked on the Machine Learning (ML) projects of Anchor Loans, building predictive models in several projects related to real estate investments. Development of supervised learning models using mainly classification and regression techniques with numerical, categorical and textual data. Development of unsupervised learning models using clustering techniques.

February 2013 – July 2016

Free University of Brussels (VUB) and Airtopsoft SA, Brussels, Belgium

Machine Learning Research Engineer

Research and reference implementation on how the Artificial Intelligence / Machine Learning technique called Reinforcement Learning can be used for the control and management of departing aircraft in big airports. This study had the goal of developing decision support system tools to help on the tasks performed by the airport tower controller, commonly called Departure MANagement (DMAN).

January 2010 – January 2013

Airtopsoft SA, Brussels, Belgium

Senior Software Engineer

One of the responsible for the development and maintenance of the Fast Time Simulator (FTS) AirTOp – Air Traffic Optimization which is developed in Java. The main tasks performed were: analysis and generation of requirements, coding, generation and maintenance of test cases, client training and support.

✍ Campina Grande, PB, Brazil
☎ +55 (83) 986094217
✉ ivomarbsoares@gmail.com

Full cv at next page.

Education

2007 – 2009 **PhD Student in Computer Science**
French School of Civil Aviation (ENAC)
Toulouse, France

2005 – 2007 **MSc in Systems Engineering and Computer Science**
federal university of rio de janeiro (UFRJ)
Rio de Janeiro, Brazil

2003 – 2004 **Exchange Student**
National Institute of Applied Sciences of Lyon (INSA)
Lyon, France

1999 – 2005 **B. in Electrical Engineering**
Federal University of Campina Grande (UFCG)
Campina Grande, Brazil

Communication skills

Portuguese	Mother tongue
English	Fluent
French	Advanced
Spanish	Intermediate

Skills

- Machine Learning
- Data Science
- Software Development
- Air Traffic Management
- Real-state Market
- Energy Sector
- Finance

Ivomar Brito Soares

Machine Learning Research Engineer — Data Scientist — Software Engineer

PERSONAL DETAILS

Birth	November 4th, 1981
Address	Campina Grande, PB, Brazil
Phone	+55 83 98609 4217 (mobile)
	+55 83 3321 1810 (home)
Mail	ivomarbsoares@gmail.com
LinkedIn	https://www.linkedin.com/in/ivomar-brito-soares-26b3b9151/

EMPLOYMENT HISTORY[1]

Machine Learning Engineer — Data Scientist Leader July 2020 - Present

TradersClub, São Paulo, Brazil

TradersClub is a platform of information and intelligence in the financial market.

Main projects:

- Revenue forecasting using time series analysis.
- Analyzing customer churn.
- Sentiment analysis.

Technologies used: Python (scikit-learn, pandas, numpy, matplotlib, seaborn, darts), R, MySQL, Jupyter, Google Colab, Git, GitHub.

Researcher — Machine Learning Engineer — Data Scientist Leader Apr 2020 - June 2020

In Forma Software, Recife, Brazil

In Forma is a specialist in information technology for the integrated management of assets in businesses that meet sectoral regulation and strict criteria for productivity and safety focusing on research and development projects mainly in the energy sector.

Main projects:

- Real-time risk map based on Machine Learning (ML) applied in predictive maintenance.
- Intelligent predictive maintenance system based on automation with ML of the electrical testing process in substation equipment without sensing.

Technologies used: Python (scikit-learn, pandas, numpy, matplotlib, seaborn), PostgreSQL, Jupyter, RapidMiner, Google Colab, Git, CodeCommit (AWS).

Machine Learning Engineer — Data Scientist (Remote) Aug 2017 - Mar 2019

Anchor Loans LP, Los Angeles, USA

Worked on the Machine Learning (ML) projects of Anchor Loans, building predictive models in several projects related to real estate investments. Development of supervised learning models using mainly classification and regression techniques with numerical, categorical and textual data. Development of unsupervised learning models using clustering techniques.

Main accomplishments:

- Development of a full applied machine learning project, from data collection to model deployment.

[1] MY TEACHING HISTORY IS PRESENT AT MY LINKEDIN PROFILE.

- Acted as a team leader, leading a team of three machine learning engineers — data scientists.

Technologies used: Python (scikit-learn, pandas, numpy, matplotlib, seaborn, tensorflow, keras), BitBucket, HipChat, Git, Jira, MondoDB, Microsoft Azure, Tableau, Linux.

Machine Learning Research Engineer Feb 2013 - Jul 2016

Free University of Brussels (VUB) and Airtopsoft SA, Brussels, Belgium

Research and reference implementation on how the Artificial Intelligence (AI) / Machine Learning (ML) technique called Reinforcement Learning (RL) can be used for the control and management of departing aircraft in big airports. This study had the goal of developing Decision Support System (DSS) tools to help on the tasks performed by the airport tower controller, commonly called Departure MANagement (DMAN).

Main activities:

- Bibliographical Review on the main techniques on RL: modeling Markov Decision Processes (MDP), Q-Learning, stochastic processes, action selection mechanisms, individual and joint action learning, function approximation etc.
- Bibliographical Review on the management and control of departing aircraft in big airports.
- Modeling, implementation and evaluation of a RL based DMAN.
- Modeling, implementation and evaluation of a DMAN testbed at the Fast Time Simulator (FTS) AirTOp.

Main accomplishments:

- First Markov Decision Process (MDP) model for a Departure MANager (DMAN) context.
- Converted AirTOp into a Reinforcement Learning (RL) Java simulator from scratch.
- RL controllers outperform the simulated airport controllers in the scenario tested.
- One of the first large scale multi-agent RL prototypes ever created and evaluated in a realistic setting. This was a very important software engineering effort.
- The research resulted in a co-authored publication appearing in a peer-reviewed conference: IEEE Intelligent Transportation Systems.

Technologies used: Java, SVN, AirTOp, Linux.

Senior Software Engineer Jan 2010 - Jan 2013

Airtopsoft SA, Brussels, Belgium

One of the responsible for the development and maintenance of the Fast Time Simulator (FTS) AirTOp – Air Traffic Optimization which is developed in Java. The main tasks performed were: analysis and generation of requirements, coding, generation and maintenance of test cases, client training and support.

Main projects:

- Responsible for the aircraft EnRoute Conflict Detection and Resolution module of the FTS AirTOp.
- Responsible for the iPort (Innovative Airport) project. Collaborative initiative between Airtopsoft and DFS (Deutsche Flugsicherung), delair Air Traffic Systems e DLR (German Aerospace Center), the last three based in Germany.
- Responsible for the ASAS (Airborne Separation Assistance System) project with ENAV in Italy. Project part of the SESAR (Single European Sky) initiative of Eurocontrol.

Main accomplishments:

- Systematization of the EnRoute Conflict Detection and Resolution mechanism. More than 80% of the conflicts detected solved in most scenarios tested.

- Successful completion of iPort project. First of its kind to connect tools used in real-time AMAN and CLOU (DFS) and DMAN (Delair) in a Fast Time Simulation (FTS) context. Wrote the Flight Message Transfer Protocol (FMTP) from Eurocontrol, aircraft gaming module, multi-threaded application with TCP/IP connections.
- Test innovative concepts of transfer of responsibility for conflict resolution maneuvers from the controller to the pilot crew. Project part of the Eurocontrol/Sesar initiative.

Technologies used: Java, C++, SVN, AirTOp, MySQL, Linux.

EDUCATION

PhD Student in Computer Science 2007-2009
French School of Civil Aviation (ENAC), Toulouse, France

MSc in Systems Engineering and Computer Science 2005-2007
Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil

Specialization in Software Engineering 2004
Federal University of Pernambuco (UFPE), Recife, Brazil

Exchange Student in Electrical and Electronics Engineering 2003-2004
National Institute of Applied Sciences (INSA-Lyon), Lyon, France

Bachelor in Electrical Engineering 1999-2005
Federal University of Campina Grande (UFCG), Campina Grande, Brazil

SKILLS

Languages	Portuguese (Mother tongue) English (Fluent) French (Advanced) Spanish (Intermediate)
Programming Languages	Python, Java, R, C/C++, Bash, Fortran
Databases	MySQL, PostgreSQL, MongoDB
Main Libraries	scikit-learn, pandas, numpy, scipy, matplotlib, seaborn, tensorflow, keras, pytorch
Version Control	Git, SVN
Software	Matlab, Scilab, RapidMiner, LABFit, AirTOp
Machine Learning	Supervised, Unsupervised, Deep Learning (CNN, RNN, GAN)

Reinforcement Learning: Inverse Reinforcement Learning, Q-Learning, Sarsa, ϵ-Greedy, Softmax, Potential Based Reward Shaping, Tile Coding, Multi-Agent Learning, Sparse Interactions, Deep Reinforcement Learning

COURSES & TRAINING[2]

COURSERA ■

***AI for Medicine Specialization*: 2 Courses** ■
deeplearning.ai

1. AI for Medical Diagnosis August 2020

2. AI for Medical Prognosis September 2020

***Deep Learning Specialization*: 5 Courses** ■
deeplearning.ai

1. Neural Networks and Deep Learning Sep 2017

2. Structuring Machine Learning Projects Oct 2017

3. Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization Oct 2017

4. Convolutional Neural Networks June 2020

5. Sequence Models June 2020

***IBM Data Science Professional Specialization*: 9 Courses** ■
IBM

1. What is Data Science? Apr 2020

2. Open Source tools for Data Science Apr 2020

3. Data Science Methodology May 2020

[2]THE CERTIFICATES CAN BE SEEN AT MY LINKEDIN PROFILE.

4. Python for Data Science and AI May 2020

5. Database and SQL for Data Science May 2020

6. Data Analysis with Python May 2020

7. Data Visualization with Python May 2020

8. Machine Learning with Python May 2020

9. Applied Data Science Capstone May 2020

***Natural Language Processing Specialization*: 3 Courses** ■
deeplearning.ai

1. Natural Language Processing with Classification and Vector Spaces July 2020

2. Natural Language Processing with Probabilistic Models July 2020

3. Natural Language Processing with Sequence Models August 2020

***Other*: 2 Courses** ■

1. AI for Everyone May 2019
deeplearning.ai

2. Introduction to Tensorflow for Artificial Intelligence, Machine Learning, and Deep Learning May 2019
deeplearning.ai

DATACAMP: 20 Courses ■

1. Supervised Learning with scikit-learn May 2017

2. Statistical Thinking in Python (Part 1) May 2017

3. Introduction to Python for Data Science May 2017

4. Intermediate Python for Data Science May 2017

5. Deep Learning in Python May 2017

6. Pandas Foundations Jul 2017

7. Unsupervised Learning in Python Jul 2017

8. Python Data Science Toolbox (Part 2) Jul 2017

9. Network Analysis in Python (Part 1) Jul 2017

10. Manipulating DataFrames with pandas Jul 2017

11. Machine Learning with the Experts: School Budgets Jul 2017

12. Introduction to Data Visualization with Python Jul 2017

13. Natural Language Processing Fundamentals in Python Jul 2017

14. Extreme Gradient Boosting with XGBoost Mar 2020

15. Recurrent Neural Networks for Language Modeling in Python Mar 2020

16. Building Chatbots in Python Mar 2020

17. Customer Analytics and A/B Testing in Python Mar 2020

18. Time Series Analysis in Python Mar 2020

19. Introduction to PySpark Apr 2020

20. Machine Learning for Time Series Data in Python Apr 2020

UDEMY: 4 Courses ■

1. Statistics for Business Analytics and Data Science Feb 2020

2. Artificial Neural Networks in Python Feb 2020

3. Machine Learning Practical: 6 Real-World Applications Feb 2020

4. Data Science: Natural Language Processing (NLP) in Python Mar 2020

OTHER: 8 Courses ■

1. Multi-Agent Learning Dynamics Aug 2012
Free University of Brussels (VUB)

2. The Fundamentals of Business and (Technology) Entrepreneurship Oct 2013
Free University of Brussels (VUB)

3. Advanced Business and (Technology) Entrepreneurship Oct 2014
Free University of Brussels (VUB)

4. Machine Learning Jul 2015
Stanford

5. R Programming Feb 2016
Johns Hopkins University School of Education

6. Tabular Data August 2020
Amazon's Machine Learning University

7. Natural Language Processing August 2020
Amazon's Machine Learning University

8. Computer Vision August 2020
Amazon's Machine Learning University

PUBLICATIONS[3]

1. **Departure MANagement with a Reinforcement Learning Approach: Respecting CFMU Slots**, Soares, Ivomar B.; De Hauwere, Yann-Michael; Januarius,

[3]SOME OF THE PAPERS HAD THEIR TITLE TRANSLATED FROM PORTUGUESE TO ENGLISH.

Kris; Brys, Tim; Salvant, Thierry; Nowé, Ann, IEEE Intelligent Transportation Systems Conference, Las Palmas de Gran Canaria, Spain, 2015.

2. **A Tutorial for Programming in Visual Fortran**, Soares, Ivomar B.; Silva, Wilton P.; Silva, Diogo D. P. S.; Silva, Cleiton D.; Silva, Cleide M., Brazilian Congress for the Teaching of Engineering (COBENGE), Brazil, 2006.

3. **A Fortran Expression Evaluation**, Silva, Wilton P.; Silva, Cleide M. D. P. S.; Soares, I. B.; Nascimento, José Luís do, Cleiton D. P. S. E., Science and Technology Journal, Brazil, 2005.

4. **Software "VSOM": Determining the Sound Speed in the Air**, Silva, Wilton P. da; Silva, Cleide M. D. P. S.; Silva, Diogo D. P. S.; Soares, Ivomar B; Silva, Cleiton D. P. S., Physics Education Journal, Uruguay, 2004.

5. **LAB Fit Curve Fitting: A Software in Portuguese for Treatment of Experimental Data**, Silva, Wilton P.; Silva, Cleide M. D. P. S.; Cavalcanti, Cláudio G B; Silva, Diogo. D. P. S.; Soares, Ivomar B; Oliveira, João A. S.; Silva, Cleiton D. P. S., Brazilian Journal for the Teaching of Physics, Brazil, 2004.

6. **Sphere on Inclined Plane: Conservation of Mechanical Energy and Frictional Force**, Silva, Wilton P.; Silva, Cleide M. D. P. S.; Precker, Jurgen W.; Silva, Diogo D. P. S.; Soares, Ivomar B.; Silva, Cleiton D. P. S., Brazilian Journal for the Teaching of Physics, Brazil, 2003.

7. **Presentation of the Educational Software "Vest21 Mechanics"**, Silva, Wilton P.; Silva, Cleide M. D. P. S.; Silva, Cleiton D. P. S.; Silva, Diogo D. P. S.; Soares, Ivomar B., Brazilian Journal for the Teaching of Physics, Brazil, 2002.

GENERAL INTERESTS

Sports	Rugby, table tennis, volleyball, running
Leisure	Traveling, cinema, TV series, hiking, nature, books
Hobbies	Photography, astronomy, aquariums
Voluntary Work	AFS Intercultural Brazil, University Pastoral Program UFCG, Straffe Ketten RFC Brussels, Campina Grande Data Science, Scikit-Learn