ADRIAN IONITA

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Adrian Ionita 🔗

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profile

Data science engineer focused on computational modeling with a strong background in software engineering. Education and industry experience lead to a deep understanding of the scientific and development challenges faced when building machine learning systems. I am able to support companies in data science tasks, develop research concepts and turn them into production code.

tech skills

Programming

R, Python, **C/C++**, **SQL**, MATLAB, AWS, Docker, JavaScript, C#, CUDA, ElasticSearch, MongoDB

Data Science

Principal Component Analysis, Independent Component Analysis, Fourier Domains, **Monte Carlo Markov Chains**, Cluster Analysis, Agent Based Modeling, **Bayesian Methods**, Particle Filters

Machine Learning

Deep Learning (Classification & Regression), **RNN**, RBF Networks, SOM, Committee Machines, Belief Propagation, Reinforcement Learning, Hebbian Learning, Improving Generalisation & Training Speed

employment

Data Scientist, EDF Trading - *contract*   Nov 2021 - current

- Deriving from raw trade data the exact logic needed for composing candlesticks, giving users access to a historic view of the trading market.
- Developing an algorithm for market market liquidity by categorising trades, enabling traders to have a more representative view of liquidity.
- Investigating anomaly detection on trade data, helping the company satisfy compliance and regulatory obligations.

Key Technologies: Python, Jupyter Lab, Pandas

R Developer, LLOYDS (via EPAM) - *contract*   Mar 2020 - Oct 2021

- Supporting the capital modelling team in a smooth migration to Azure.
- Optimising R functionality to bring large performance improvements in Azure.
- Training acturials on R best practices, improving the reliability of their code and day to day operations.

Key Technologies: R, Rcpp, C++, SQL, RSConnect, Tidyverse, Testing Automation

R Developer, UBS (via Accenture) - *contract*   Jun 2019 - Feb 2020

- Onboarding risk models into simulation platform ensuring reliable opperation for regulatory runs.
- Setting up code base for continuous integration and deployment leading to a streamlined development process.
- Adapting code for execution at scale using SparkR.

Key Technologies: R, CI/CD, SparkR

Data Scientist NLP, EDF Energy - *contract*   Dec 2018 - May 2019

- Consulting the business on AI/ML capabilities and lesser known limitations, shaping long term AI strategies
- Identifying value opportunities from applied data science, and language processing automation
- Delivering insights into customer queries and complaints, guiding business focus to high volume chat-bot cases

Key Technologies: Python, LDA topic modeling, CorEx topic modeling, Neural Network Classification

R Developer / Data Scientist, Deutsche Bank (via HCL) - *contract*   July 2018 - Apr 2019

- Bringing proof of concept model for assessing IT Risk into production readiness.
- Assessing model correctness and improving credibility with business stakeholders.
- Optimising computation time which reduced execution from weeks to hours.

Key Technologies: R, Oracle PLSQL

Data Scientist, Jigsaw.xyz - *contract*   Jan 2018 - July 2018
  - Led data science team and mentored junior developers in mathematical techniques.
  - Delivered from the ground up a data science platform, exposing prediction services and analytics to the company.
  - Mapping value opportunities for data science to key problems and enabling route to market.
    Key Technologies: Python, SQL, R, Node.js, ElasticSearch, AWS, Bayesian Modeling / Probabilistic Programming

Further Work History Available on LinkedIn   2010 - 2016
    Key Technologies: C#, SQL, ASP.NET, MVC2, T-SQL, NserviceBus, RavenDB, Python, Micro-Services

projects

Crypto Trading Algorithm   Nov 2021 - Current
  - Developing a volatility based trading algorithm that leverages the high price fluctuation of crypto assets.
  - Algorithmically determining the optimal trading points for historic data.
    Key Technologies: C++, R, Dynet, ctree, algorithms

Semantic Representation In Human Language   Sep 2016 - July 2021
  - Developing custom sentence tokenising, enabling reuse across non-english languages
  - Researching unsupervised training technique for language structure and semantic representation
    Key Technologies: R, Python, Deep Learning (RNN), PyTorch, Dynet, C++

Efficient input sampling for determining minimum viable data   Jan 2018 - Mar 2018
  - Given a small set of data, determine which records are required to achieve a representative view of the input space.
  - Developing Bayesian inference technique to estimate the minimum viable records needed for training a model proposition.
    Key Technologies: Python, Bayesian Methods / Probabilistic Programming

Fuel Savings Prediction Model   Jan 2017 - May 2017
  - Designing statistical model that estimates fuel and repair savings from optimal tyre inflation for fleets of vehicles
  - Guiding junior analyst in model implementation, teaching good code practices
    Key Technologies: R, Monte Carlo Markov Chain

Customer Flow Forecasting, Udacity competition   Feb 2017 - Mar 2017
  - Processing large dataset of customer transactions into time series, enabling easier analysis and prediction
  - Experimenting with various time series prediction approaches leading to a solution that placed team in top 10%
    Key Technologies: R, ICA, Fourier Domains, Cluster Analysis, Regression

Computational Model For Tool Use Reasoning, University of Birmingham   Apr 2016 - Dec 2016
  - Laid foundation for a computational model of human tool use, ensuring future extensibility and reproducibility
  - Evaluated physics engines for faithful simulation of real physical interactions, enabling accurate experimentation
  - Proposed novel technique for shape matching, that employs surface level correlation to mimic geometric reasoning
    Key Technologies: C++, MATLAB, Physics Simulation, PCA

Robotic Model For Optimal Gaze Control, University of Birmingham   Dec 2015 - Apr 2016
  - Implemented neural network model that learns optimal gaze strategies from environment feedback
  - Model considers sensory uncertainty in its internal belief state when evaluating choices for gaze locations
  - Performance is far beyond random gaze, improving time efficiency by reducing number of ocular fixations
    Key Technologies: MATLAB, Particle Filters, RBF networks, Reinforcement Learning

education

MSc. Computational Neuroscience and Cognitive Robotics, University Of Birmingham,   2016
    Focused on computational methods, modeling and neural networks
    Graduated with distinction

MSc. Computer Security, University Of Birmingham,   2010
    Graduated with distinction

Oracle Academic Initiative, University Of Bucharest, Romania,   2009

BSc. Computer Science, University Of Bucharest, Romania,   2009
    Degree focused on algorithmics and theoretical computer science
    Equivalent of distinction

Diploma for Excellence in Computer Science, National Center For Excellence, Romania,   2006
    Awarded for academic performance in advanced algorithmics

references   Available on request