Dr. Adam Jaspan

Data Scientist

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CAREER PROFILE

I attained my Doctorate researching particle physics at the University of Liverpool, where I performed complex data analysis at one of the world's largest experiments at CERN, Geneva. I then spent nearly two years developing novel Data Science (DS) products with Elastacloud, helping a range of companies utilise their unstructured sources of data. I am now working at DYWIDAG, leveraging a comprehensive suite of Machine Learning (ML) and Computer Vision (CV) techniques to add value to DYWIDAG's product offering of remote sensor and monitoring equipment. This work enables the efficient and timely monitoring of the health of various key infrastructure assets across countries within Europe, Asia, and the Americas. Beyond this, my interests lie in economics and politics, and I spend my personal time studying and developing the statistical methodology of political science.

EXPERIENCES

Data Scientist
2022 - Present

London DYWIDAG Ltd,

- Published novel techniques in the application of forecasting techniques on sensor data at an international conference.
- Deployed forecasting techniques on live sensor data, providing a value add helping to secure key commercial contracts.
- Innovated automation of defect detection and localization in vast image datasets, utilizing cutting-edge computer vision techniques.
- Led the back-end research and development of complex image reconstruction techniques within architectural and computational constraints.
- Peer-reviewed statistical models used in the maintenance of key US infrastructure.

Data Scientist
2021 - 2022

London Elastacloud Ltd,

- Led a team initiative into deploying continuous integration, training and deployment (CI/CT/CD) for ML pipelines via cloud resources and advancing MLOps practices within the company.
- Mastered big data analytics on the Databricks platform, leveraging Spark for scalable data processing.
- Optimized cloud computing resources for efficient ML model deployment via the Azure portal.
- Engineered and deployed robust end-to-end object detection ML pipelines utilizing advanced computer vision techniques, and deploying OCR through the Azure ML studio.
- Streamlined the client workflow for a FTSE 100 company, taking a leading role in product development.
- Developed language classification and object detection pipelines using NLP and computer vision techniques, with Keras and Azure.
- Achieved expertise in managing unstructured data, utilizing OpenCV and spaCy APIs to extract valuable insights.
- Provided mentorship and guidance to new developers, fostering a culture of continuous learning and collaboration.
- Led the coordination and presentation of MVPs to stakeholders, ensuring alignment with user needs and operational requirements.

Postgraduate Researcher
2017 - 2021

Liverpool University of Liverpool,

- Produced a leading publication, developing advanced statistical analysis within the PyROOT framework.
- Successfully developed and tested ML solutions to event selection in big data

EDUCATION

PhD in Particle-physics
University of Liverpool
2017 - 2021

MPhys in Physics (1st)
University of Liverpool
2013 - 2017

PROFICIENCIES

Advanced Statistics [8 years] (Machine learning, likelihood testing, Bayesian inference, forecasting)
Computer Vision [3 years]
Time series analysis [2 years]
Natural Language Processing [1 year]

TECH STACK

Python [8+ years] (Tensorflow, scikit-learn, YOLO, OpenCV, spaCy, pandas, numpy, scikit-learn, matplotlib, plotly)

Git [8+ years]

Docker [5+ years]

Azure [3 year] (AzureML, Databricks, Cognitive Services, DevOps)

C++ [3 years]

CSS, HTML [< 1 year]

sets using neural nets and random forests, implemented in both the Keras and scikit-learn toolkits.
- Delivered analysis of petabyte-scale data sets through distributed cloud computing.
- Domain expert in particle physics & advanced statistics, inc. hypothesis testing and pseudo-experiments.
- Developed strong communication skills presenting at both group meetings and national conferences to both technical and non technical audiences.

Postgraduate Researcher
2018 - 2019

Geneva CERN,

- Awarded a year's secondment to the CERN collaboration in Geneva.
- Responsible for "run control" shifts in the ATLAS control centre, operating the largest experiment in CERN.
- Successfully integrated within a large, multinational collaboration of leading academics.

Graduate Teaching Assistant
2017 - 2021

Liverpool University of Liverpool,

- Supervised undergraduate physics students, assisting with technical assignments in a range of subjects.
- Assisted undergraduates in using various machine learning packages and Python libraries, demonstrating proficiency in each subject.
- Applied strong interpersonal skills to effectively communicate the technologies involved.

Research Assistant Internship
May - Sept 2016

Liverpool University of Liverpool,

- Developed a vibrational isolation platform used in the Liverpool Laser Cold Atom Interferometry experiment.

R&D Internship
May - Sept 2015

Nottingham Cavendish Laboratories,

- Performed R&D to develop and stress-test 3D models of surgical implants for use in scoliosis (spinal curvature) surgery.

PROJECTS

Election Forecasting - Developed a Hierarchical Bayesian model to forecast election results in a fictional country, resembling the UK's first-past-the-post electoral system.Employing a "polls plus" model that combines political polling data with fundamentals.

PUBLICATIONS

- Applied Bayesian Structural Health Monitoring: inclinometer data anomaly detection and forecasting

David K. E. Green, Adam Jaspan

- Search for pair-produced scalar and vector leptoquarks decaying into third-generation quarks and first- or second-generation leptons in pp collisions with the ATLAS detector

The ATLAS collaboration

- Search for pairs of scalar leptoquarks decaying into quarks and electrons or muons in √s = 13 TeV pp collisions with the ATLAS detector, (2020), arXiv: 2006.05872 [hep-ex]

The ATLAS collaboration

SQL [<1 year]

R [<1 year]

Java [<1 year]

CERTIFICATIONS

Microsoft Certified: Azure …

EXPIRED

Issuer: Microsoft

PROVIDED BY Credly

Microsoft Certified: Azure …

Issuer: Microsoft

PROVIDED BY Credly

INTERESTS

Technology, politics, current affairs, economics, music, skiing, climbing, running, cycling, hiking

REFERENCES

Available on request.

• Implementation of merged multi-leg $t\bar{t}$ samples at NLO accuracy using Matchbox framework in Herwig 7, tech. rep. ATL-COM-PHYS-2019-1300, CERN, 2019
Adam Elliott Jaspan