Andrew **Presland**

MACHINE LEARNING · DATA SCIENCE · DATA ENGINEERING

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Objective

Seeking a role in machine learning, perception and autonomous systems. The role should exploit professional expereience in machine learning and software engineering together with skills in simulation and high performance computing acquired as a particle physicist (PhD, CERN). I am a continual learner and recently undertook a program of continued education focussed on computer vision, deep learning, and robotics.

Experience

Data Scientist
AxonVIBE AG.
Luzern, Switzerland
2018 - 2021

- Worked on a location based contextual platform I builing models that use mobile sensor data (GNSS/IMU) to detect behavioural patterns in users mobility (CNN, Gradient Boosting Machines, Spatio-Temporal Clustering, Markov Models). Constructed serverless injestion pipelines for data-monitoring, anomaly detection, and feature extraction (AWS Lambda, Batch and S3).
- Developed a system for Significant Location detection and productionized it as a Spring Boot Batch service including ETL and JDBC data connectors as a Spring Boot RESTful service and visualization with Javascript.

Senior Software Engineer
bbv Software Services AG.
Luzern, Switzerland
2010 - 2018

- Developed embedded software for (RTOS/Embedded Linux) using Agile and eXtreme Programming for projects including fieldbus based distributed real-time motion control (industrial robotics), communication and security modules (IoT), and metering platform (SmartEnergy).
- Quality Assurance Engineering for medical devices with mobile app controller including executable functional specification in Cucumber, test automation with Appium and Jenkins CI.

Project Leader (Software)
Hagenbuch Hydraulic Systems AG.
Luzern, Switzerland
2006 - 2010

- Development of real-time motion control systems for 6DOF parallel kinematic manipulators (Stewart Platforms) and Vibration Analysis rigs, real-time signal processing, spectral analysis, and HMI development (.Net).
- Project comissioning (on-site) and Level-2 technical support.

Research Fellow (Applied Physics)
European Organization for Nuclear Research (CERN)
Geneva, Switzerland
2003 - 2006

- Computational Physics and 3D geometric modeling for Accelerator Driven Systems (ADS) using the CERN high performance computing cluster.
- Monte-Carlo simulation of multi-particle transport for energy deposition and radiation damage in the LHC control electronics under beam accident scenarios. The studies ultimately help ensure the correct and safe operation of the LHC.

Post Doctoral Research Associate (High Energy Physics)
H. H. Wills Physics Laboratory, University of Bristol
Geneva, Switzerland
2001 - 2003

- Member of the LHCb collaboration searching for the source of matter-antimatter asymmetry in the universe by studying decays of sub-atomic particles containing b-quarks.
- Contributed to the physics Object Data Model, developed reconstruction code for the Data Processing Framework (Gaudi) and performed Monte-Carlo simulation and Scientific Data Analysis using ROOT Data Analysis Framework.

Doctoral Researcher (High Energy Physics)
H. H. Wills Physics Laboratory, University of Bristol
Bristol, UK
1998 - 2001

- Member of the CMS collaboration, a general purpose detector at the LHC primarily focussed on the search for the Higgs Boson.
- Prototyping of the PbWO4 scintillating crystal calorimeters with photon detector readout for detecting electromagnetic particels. Physics event reconstruction (from Geant4 simulation) uisng Kalman filters, energy clustering. Data mining and statistical analysis using ROOT.

Skills

Code	Python, C++, Cuda, JAVA, Scala, MATLAB, SQL, Git
Numerical	Pobability, Statistics, Linear Algebra, Calculus, Scientific Data Analysis
Frameworks	Tensorflow, Keras, TensorRT, OpenCV, Scikit-learn, numpy, pandas, scipy, Jupyter
ML / AI	CNN, RNN, LSTM, GAN, Object Detection, Random Forest, Gradient Boosting Machines, Clustering
Computer Vision	Feature Detection, Matching, Tracking, Optical Flow, Visual Odometry
Data Engineering	Apache Beam, Apache Spark, Tensorflow Extended (TFX), AWS Lambda Batch S3, Docker
Robotics	ROS, Gazebo Simulator, RViz, URDF
Embedded	Embedded Linux, RTOS, Microcontrollers, DSP, Fieldbus, Distributed Controls

Education

Doctor of Philosophy (Ph.D.) Experimental High Energy Physics *Bristol, U.K.*
H. H. WILLS PHYSICS LABORATORY, UNIVERSITY OF BRISTOL *1998 - 2001*

Bachelor of Science (B.Sc.) Applied Physics (1st Class) *Stoke-on-Trent, U.K.*
STAFFORDSHIRE UNIVERSITY *1995 - 1998*

Bachelor of Arts (B.A.) Graphic Design (2nd Class) *Leeds, U.K.*
LEEDS BECKETT UNIVERSITY *1989 - 1991*

Courses

AMRx: Autonomous Mobile Robots *ETH Zurich / edX*
Core concepts and algorithms of Locomotion, Perception, Localization and Intelligent Navigation *June 2021*

Robotics Software Engineering Nanodegree *Udacity*
Autonomous robotic development in C++ with ROS and Gazebo Simulator. *March 2021*

Tensorflow: Advanced Techniques *DeepLearning.AI*
Advanced computer vision, generative deep learning, custom layers and loss Functions, distributed training. *Feb. 2021*

Applied Machine Learning in Python *Michigan / Coursera*
Machine Learning, numpy, pandas, Scikit-learn, Classification, Clustering, Crossvalidation, Hyperparameters. *Apr. 2018*

Applied Plotting, Charting and Data Representation in Python *Michigan / Coursera*
Data Vizualization, numpy, pandas, matplotlib *Feb. 2018*

Machine Learning *Stanford / Coursera*
Logistic Regression, Artifical Neural Networks, Machine Learning. *Jan. 2018*

Functional Programming in Scala *EPFL / Coursera*
Scala, Functional Programming, Apache Spark, Parallel Computing. *Dec. 2017*

Certifications

01.2021 **Tensorflow Developer Certificate**, *Tensorflow.org*
08.2017 **Oracle Certified Associate: Java SE8 Programmer**, *Oracle*
05.2011 **Scrum Master**, *Scrum Alliance*