Andrew **Presland**

Software Engineering · Machine Learning · Data Processing

Oberschlossfeld 33, Willisau, 6130, Switzerland

(+41) 79-960-8333 | andrew.presland@gmail.com | www.presland.io | apresland | apresland

Objective

I seek a role in machine perception, computer vision and autonomous systems. I bring professional experience as a machine learning and software engineer which is combined with a background in scientific computing and data analytics for particle physics (CERN Reseach Fellow). Focus has been achieved by recent certifications and portfolio projects in deep learning, robotics and computer vision.

Experience

Data Scientist
Luzern, Switzerland

AxonVIBE AG. *2018 - 2021*

- Built models that used mobile sensor data (GNSS/IMU) to detect behavioural patterns in users mobility using Neural Networks, Gradient Boosting, Spatio-Temporal clustering and Markov Models.
- Built serverless data-monitoring, anomaly detection, and feature extraction pipelines in Python using AWS Lambda, Batch and S3
- Productionized Significant Location Detection in Java as a Spring Boot Batch service including ETL and JDBC data connections as a Spring Boot RESTful service and visualization with Javascript frontend dashboard.

Senior Software Engineer
Luzern, Switzerland

bbv Software Services AG. *2010 - 2018*

- Delivered testable embedded software for RTOS and Embedded Linux using Agile, and Extreme Programming.
- Developed communication (TCP/IP) and security (SSL/TLS) modules, and Hardware Abstraction Layers for IoT devices and fieldbus based distributed motion control solutions for industrial robots.
- Quality Assurance Engineering with executable behaviour specification in Cucumber, artifact managment with JFrog and test with Appium and CI with Jenkins.

Project Leader (Software)
Luzern, Switzerland

Hagenbuch Hydraulic Systems AG. *2006 - 2010*

- Development of real-time motion control systems for 6DOF parallel kinematic manipulators (Stewart Platforms) and Vibration Analysis rigs using distributed control systems connected by fieldbus and real-time signal processing for spectral analysis and HMI development using .Net.
- Level-2 technical support.

Research Fellow (Applied Physics)
Geneva, Switzerland

European Organization for Nuclear Research (CERN) *2003 - 2006*

- Computational Physics developer creating simulations for Accelerator Driven Systems (ADS) on the CERN high performance computing cluster.
- Monte-Carlo simulation of multi-particle transport for thermal energy deposition and radiation damage in the LHC control electronics under beam accident scenarios. The studies ultimately ensured the correct and sage operation of the LHC.

Post Doctoral Research Associate (High Energy Physics)
Geneva, Switzerland

H. H. Wills Physics Laboratory, University of Bristol *2001 - 2003*

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

Doctoral Researcher (High Energy Physics)
Bristol, UK

H. H. Wills Physics Laboratory, University of Bristol *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 and photon detector readout for detecting electromagnetic particels.
- Reconstruction of particle energy using clustering algorithms to process signals from photon sensor readout.

Skills

Code	Python, C++, Cuda, JAVA, Scala, MATLAB, SQL
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*
Locomotion, Perception, Localization, SLAM, Intelligent Navigation — *June 2021*

Robotics Software Engineering Nanodegree — *Udacity*
Autonomous robotic development 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*
Functional Programming, Big Data, Apache Spark, Parallel Computation. — *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*