Gerard Louis Walsh

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https://github.com/GerardWalsh

Software skills

R	MySQL	Pandas, Tidyverse, Flask
Python	Linux	Deep Learning Software environments (TensorFlow, NVIDIA toolkit)
C & C++	Docker	OpenCV
Bash	Git	

Work experience

Exegetic Analytics

Junior Data Scientist 2019/03 - current

Consult for various companies on Data Science tasks: Analytics, model creation and visualization in R & Python, database management in MySQL, Shiny dashboard development, deployment & containerization with Docker, all in Linux.
Projects include: Analytics with Pandas to analyze & prevent customer churn, customer segmentation to determine behaviour patterns that allow efficient marketing strategies and predictive modelling with scikit-learn to determine features of successful online platform use/ behaviour. Development of Flask API, starting with ETL pipeline from US government API. Dashboard development in Shiny for food delivery company to optimize delivery times and driver customer satisfaction.
Presented a lightning talk at satRday 2019 - "Why tidy data matters". Co-hosted a workshop, at PyConZa 2019, on Deep Learning.

Fraunhofer IWU, Chemnitz, Germany

Computer Vision Research Intern 2018/09 - 2019/01

Literature review and critical analysis of state-of-the-art Computer Vision algorithms for Object Tracking, Detection, Pose Estimation and Stereo Vision. Assessment for industry usage based on robustness and speed. Familiarity with various Computer Vision algorithms such as YOLOv3, RCNN, ResNet, packages like TensorFlow & Caffe2 used with languages Python, C++ and MATLAB. Creation and maintenance of software infrastructure including Docker images, NVIDIA GPU drivers/toolkits, virtual environments.

Stellenbosch University, Stellenbosch

University tutor (part time) 2017/07 - 2017/11

1st year Engineering Computer Programming in C.
3rd year Mechanical and Mechatronic Engineering Control Systems.

University tutor (part time) 2014/01 - 2015/01

1st year Engineering Mathematics.
1st year Strength of Materials.

Stellies Tutoring, Stellenbosch

Private tutor (part time) 2017/07 - 2017/11

1st year Engineering Computer Programming in C.

Thermodynamics Fluids & Design (TFD), Stellenbosch

Systems Engineer (Vacation work) 2016/11 - 2017/02

Mechanical design w/ AutoCAD, P&ID design of a manufacturing plant. Liase with client (Rheinmetall Denel Munition) directly regarding chemical plant layout and design.

Education

Masters in Mechatronic Engineering (Cum Laude)

Stellenbosch University
STELLENBOSCH, SOUTH AFRICA 2019

Thesis: Feasibility analysis of general-purpose single board computer for real-time execution of a visual object tracking algorithm, implemented in C++ utilizing OpenCV's framework, for deployment on UAVs.

Bachelors in Mechanical Engineering
Stellenbosch University
STELLENBOSCH, SOUTH AFRICA 2017

Thesis: Design, manufacture and calibration of a Bi-Axial strain device for testing mechanical properties of heart-valve tissue prosthesis.

Matric
South Africa College Schools (SACS)
CAPE TOWN, SOUTH AFRICA 2010

Projects

IEEE Fraud Detection Kaggle Competition
A model was built to predict fraudulent transactions given a user's credit card data, for a Kaggle competition hosted by the IEEE. A Random Forest model was fitted to the data as an investigation into the interpretability of the feature set and model.

Dataset cleaner
The aim was to build a utility that can be used to remove duplicates from an image dataset, and store unique images in an efficient data structure that can be searched when new data points are to be added to an image dataset. The final output is a CLI utility, built using Click.

Image classifier
An image classifier was built to classify car models for a small subset of VW models. The aim of the project was to test the hypothesis that a model could be trained, with minimal data, on a challenging dataset of similar objects. The model was trained using Tensorflow 2.0 and data was curated by scraping the web. Various CNN architectures and optimizers were tested to develop a model that could generalize.

About

Spoken languages
English, Afrikaans, German (A1).

Hobbies
Swimming, Water polo, Yoga, Mountain-biking, self-development, automotive diy, motorsport.

Courses
Courses 1 & 2 in Deep Learning specialization on Coursera.