Guy Alexander Reading
BSc (Hons), MSc

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Summary

A Data Scientist with a background in small scale Physics and semiconductor manufacturing, with 6+ years of experience. Guy has extended experience with Deep Reinforcement Learning and a keen interest in Neurosymbolic AI, reasoning within AI and causal AI.

Experience

July 2022- PRESENT
Data Scientist, Faculty, London
- Partially led a multi-million-pound low-TRL Reinforcement Learning research project that spanned multiple collaboration partners within Defence.
- Undertook direction-setting, experimentation and implementation of an NLP project for a defence customer.
- Main technical contributor within Faculty for technical vision & planning on RL bids to win new contracts.

NOVEMBER 2020 – July 2022
Data Science and Machine Learning Research Engineer, Raytheon, Gloucester
- Led the team within Raytheon to compete in the CAGE Challenge. Led the development of a Hierarchical PPO agent and novel observation transformations to do this.
- Developed/trained/mentored training of Reinforcement Learning models, including PPO, A2C, Rainbow DQN, using many different frameworks. This also included reward shaping, building tools to verify model training, using tensorboard/other visualisations.
- Applied GANs to computer generated images to make them more realistic.
- Used XAI techniques including SHAP and MACEst to understand the models we created.
- Applied image process techniques then graph techniques to graph road networks.
- All projects were in python and we tended to use: Docker, WSL (& so linux CLI), github, DVC, AWS (sagemaker or cloud9/EC2, S3 buckets).
- Mentored MSc Data Science students on Raytheon industrial placement projects.

JUNE 2018 – APRIL 2020
Informatics Scientist, Ilika, Southampton
Built a multitude of software tools in MATLAB to help the research scientists interpret their data. This includes:
- In-house Machine Learning specialist, looking for patterns between manufacturing data and quality data to optimize the manufacturing process. I worked with many different data formats, including JSON and XML, and built SQL databases and worked with Mongodb.
- Automated parts of QA for the manufacturing process, notably, I developed a lump detector (finding lumps in pictures of thin films) to automate QA of Ilika's screen printing

processes. This was done using transfer learning on a pre-trained semantic segmentation model, Deeplab-V3+.
- Tools for: Image processing, data processing (automatic background subtraction in charts for Raman & XRD equipment data), to analyse/visualise battery data and tools to simulate/model different battery architectures using COMSOL.
- Statistical/Design of Experiments tools (experiment design & analyzing results: think JMP).

JANUARY 2017 – FEBUARY 2018
Principle Project Engineer/NeevesTECH - Glasgow (Start-up working with founder)
- Built the company website.
- Implemented wireless communications protocols for our products.
- Managed and printed 3D printed mechanical models/prototypes.
- Organized & represented at marketing events (Vacuum Expo).

SEPTEMBER 2015 – JANUARY 2017
Development Engineer/Teledyne e2v, Chelmsford
- Continued with my responsibilities taken on during my time as a Graduate Engineer.
- Developed automated data processing for my equipment using excel & VBA.
- Built statistical process control (SPC) tools using VBA to automate chart updating within the department.

SEPTEMBER 2013 – SEPTEMBER 2015
Graduate Engineer/Teledyne e2v, Chelmsford
- Became owner of two core pieces of equipment: 1. Quantum Efficiency measurement equipment and 2. Reflectivity measurement equipment. Responsible for equipment maintenance, measurement, analysis & reporting.

Education

Sept 11-Sept 12	Graduated with a Merit in MSc in Nanoelectronics and Nanomechanics from University of Leeds and University of Sheffield.
Sept 08- Sept 11	BSc in Nanotechnology from University of Leeds
Sept 09-Sept 11	4 GCE A2 levels: Physics, Mathematics, Chemistry and Psychology. 5 GCE AS levels: the above A2's and General Studies
Sept 04-Sept 09	12 GCSE levels including: Mathematics, Chemistry, Physics and Biology

Awards/Qualifications

AWS Certified Developer Associate • APM Project Management Fundamentals • Six Sigma Yellow Belt • Machine Learning -Harvard University Online • Deep Learning Specialization - DeepLearning.ai • IET Present Around the World Essex Local Network Runner-Up 2014