

**Data Platform Engineer**simon@simonhowes.org.uk / 07340 792 721www.linkedin.com/in/simon-howes-datawax**Core Skills**

- With over 15 years of experience in Regulatory Finance, I specialize in rapid prototyping, dynamic requirements capture, and creating production-grade code. I effectively communicate and transfer new technologies, challenge inefficient processes, and strongly advocate for good design decisions. My abilities contributed to our team being the first to migrate HSBC to Google Cloud Platform, setting the foundation and standards for future projects and service lines.
- As a proudly neurodiverse individual, I excel in various domains and disciplines. I learn rapidly, work efficiently, and adapt quickly to change. Passionate about my work, I manage projects effectively using nodal-based project management. I am inspired by cutting-edge technology, delving into research and development projects spanning AI, VR, game design, computer graphics, robotics, electronics, psychology, mechanical engineering, and 3D design/printing. My multidisciplinary knowledge allows me to apply innovative approaches across domains, giving me a unique edge.
- I am a collaborative and: highly motivated self-starter, able to work with international teams and projects, big or small. Being proactive and able to be both diplomatic and assertive. Highly versatile and have extensive Dev-Ops experience with all stages of the process. I also work very effectively independently and require little managerial overhead.
- Over the past eighteen months, I've devoted myself to an in-depth self-study of modern AI. I've created multiple impressive proof-of-concepts that demonstrate my expertise and ongoing research in the field. As someone who learns by doing, I'm passionate about cutting-edge technology and always strive to take on challenges beyond my current abilities to accelerate my learning. I recognize the transformative power of AI, particularly in code development, and I am determined to harness its potential to seize new opportunities.

Technical Experience

- Cloud Professional with experience primarily in Google Cloud Platform, also have Azure experience (reproducing all HSBC GCP Plugin functionality for regulatory requirements) and experience with AWS (built an Alexa app + hardware). I have a strong history of designing and implementing Cloud solutions that are reliable, scalable, and cost-effective.
- AI/ML researcher with a great understanding of data science, data engineering, MLOps, legacy ML models, general AI, Vision AI and modern Transformers. Have experimented with many models and built compelling experimental POC's utilizing stacked pipelines of different variants. Experience with SageMaker and VertexAI.
- Python specialist with broad expertise in AI/ML using GPU acceleration, Cloud and on-premise solutions, IoT hardware, and Cloud functions. Proficient in popular packages (FLASK, PANDAS, NUMPY, PyTorch, TensorFlow, Streamlit, etc.)
- Language Agnostic: I swap daily between Angular/Typescript, Python, VBA, C#, BigQuery, SQL
- As a skilled UI web developer, I specialize in Angular but also have experience with Asp.net MVC, Asp.Net, and jQuery. I pride myself on creating clean projects featuring elegant CSS, well-structured code, and adhering to best practices. My expertise includes security models, OAuth2, and backend design using C# or Python.
- SME Grade Office Excel/VBA Developer - producing compelling Production Grade Excel Applications, prototype tooling/templates, and the Plugins needed to access services like Cloud or AI (And have experience doing so in C# and Python, using Azure, GCP, and AI). This CV was generated with my own tooling and uses AI.
- I write succinct, optimized, well-commented, defensive, production grade code
- Experienced in utilizing Docker for containerization, streamlining deployment processes, and enhancing application scalability.
- ETL: Access, BigQuery, MySQL, Oracle, NoSQL, SQL Server

Work Experience

HSBC Ltd, DevOps

2012-Present

- I am currently developing an NLP AI-based platform to automate manual adjustments processes. By learning from historical data, my system can predictively auto-fill fields with suggested values. I am using Python, TensorFlow, and Scikit-learn for the backend, and a Python Excel plugin and VBA to automatically populate the results.
- I improved the BigQuery Performance Analysis tool to better fit into HSBC's workflow using Angular and Python. I resolved corporate firewall issues for the development team by setting up a JavaScript proxy, an OAUTH2 workaround tool, and configuring dev/prod environments.
- As the creator and maintainer of the Adjustment Template, I've put my skills to work to design a versatile tool used by teams worldwide. I've employed every technique imaginable to create a captivating Excel UI that is high-performance, secure, and self-repairing. I've also developed plugins that enable the tool to connect to the Cloud, utilizing my expertise in Excel, VBA, C#, and Python.
- I developed a prototype plugin in Python that enabled Office and Excel to work seamlessly with Google Cloud Platform (GCP). I successfully implemented OAUTH2 security and tackled corporate proxy and certificate issues. Later, I upgraded the plugin to a more efficient C# implementation for better performance.
- Developed a functionally identical Azure plugin with unit tests to ensure 100% compatibility and refactored the Adjustment template to seamlessly switch between GCP/Azure environments to meet Stressed Exit Regulatory Requirements.
- I built the XCompiler, a migration tool that converts Platfora JSON configurations into BigQuery SQL. I tackled the hidden DAG structure by disassembling SQL-like fragments into nodal, tokenized trees and iteratively solving them to generate the necessary discrete SQL stages. This tool was invaluable for managing massive SQLs, some exceeding 6,000 lines, and saved our team months of time and testing. As a result, we became the first to implement a cloud solution at HSBC, setting the standard and structure for future projects
- As the primary RAD developer on the team, I played a key role in migrating HSBC from legacy systems (Oracle/Platfora/Ctrl-M) to GCP Cloud. I built a variety of components, such as Bucket Triggers, Cloud Functions, and PubSub Queues, as well as the Ingestor engine responsible for loading data into the Cloud DataHub. I quickly created several vital tools and utilities, allowing us to run initial batches on BigQuery. Proudly, I executed the first batches in this new environment.
- I conducted workshops and transferred knowledge and skills from our prototype Cloud solution to ensure the adoption of best practices.
- Rescued a time-critical, high-priority EBA Regulatory Project by using Rapid Prototyping to quickly iterate to a viable solution when requirements were unclear, confidence was low, time very short. Built a regulatory layer over (broken and frequently changing) Regulator Templates. This essentially, required me to clone structure and use VBA code injection/control/UI injection and versioning techniques for maintaining data even though the structure changed between versions. Added MI admin layer and audit trail to meet compliance. Completed project ahead of schedule.
- Prolifically produced over 50~ pieces of Excel/Python/C#/Access tooling for various utility and admin functions
- Migrated Regulatory Trading-Book to SQL server from existing system, tested.

RiskCare, Consultant

2006-2012

- Rebuilt the internal Time Sheet Logging system using ASP.NET MVC and jQuery. Drag and drop interface, slick modern web UI.
- (RBS client) - built the ETL Engine: a self-documenting, Web-UI with status dashboards (retry etc) and a project editor and a C# based ETL service to cater to very specific data sourcing and loading requirements. It was self-documenting, transparent, and so successful many existing projects were migrated to run on it.
- (RBS client) - built the Adjustments Template and Adjustments Regression Testing Framework to replicate and test the Platform Adjustment functionality worked.
- (RBS client) - Built extensive Office tooling/templates for the BASEL-II project

Moldflow Ltd (now Solidworks), Developer
2002-2006

- Worked on the continual development of Moldflow Plastics Advisor. A 3D CAD finite element analysis package to aid in the debugging of Plastic Injection Molding. The project was all C++ and very low-level OpenGL graphics API. It was further complicated by the fact it was ported to Sun, Silicon Graphics and HP workstations and these all had to be maintained. (1.2M+ lines of C++ code)
- Refactored code and ported a subset of the functionality to run as a plugin in Solidworks who later acquired Moldflow.
- One of the key problems I solved required implementing spatial partitioning (oct-tree) algorithms to speed up Collision detection of elements (this is essentially a 3d spatial Decision Tree) - the algorithm reduced the Runner System/Mesh Intersection check from minutes to seconds.

Ascended.NET, CTO
1999-2002

- CTO of this US based DOTCOM Start-up at age 19
- We developed a generic E-commerce application that used a Windows based interface to enable users to scan in existing catalogues and simplified building E-commerce websites, I designed and built majority of the FrontEnd and Backend (ASP) web server and managed the team.

Personal Projects and Active Research
Ongoing

- I built a powerful news harvester and aggregator as part of my data science projects. It operates on a massively parallel system and comes with a web-based user interface, machine learning capabilities, and the ability to automatically spawn cloud worker instances. To prevent tarpitting, I even implemented some deviant IP-hopping techniques. The harvested data is then analyzed using natural language processing (NLP) techniques to classify and identify trends, which in turn feeds into my prediction platform. This is further enriched by combining it with ONS data and market trends, and soon I plan to use a time-series transformer to make predictions. Ultimately, it is a powerful tool for predicting news sentiment, economic trends, and market trends, all through a time series analysis approach.
- I created a computer vision system for my garden, which was initially designed to detect only moving images while preventing retriggering through entropy mapping. Using CNN's, I first trained the system to differentiate between noise and animals. As my training set grew in size, I was able to retrain the system to identify individual animals. I began with identifying noise and continued to iterate until the system was capable of reliable classification.
- I am currently working on an incredible Cyber-Dystopian game using Unreal. One of the highlights of the game is its stunning weather system which includes dynamic puddles and ripples, along with a range of other impressive visual effects and physics. The game design is incredibly multi-disciplinary, involving elements of mathematics, art, programming and logic. In fact, the complexity of the game design far surpasses anything I ever tackled during my time working in finance.
- I built a VR Experience to showcase the Cloud Project that we had just delivered, which was presented at our end-of-year office celebration. The experience included an animated version of Canary Wharf and a lot of dynamic and informative elements. It turned out to be a huge success and was well-received by everyone.
- Built the hardware, software for a real-time motion control system to pivot a chair (and thus simulate gravity) for Virtual Reality and integrated with the Unity game engine. Big motors and a complex multi-layer networked, S-curve motion planning system, with interrupt driven step/direction and integral E-stop control. Physically fabricating it myself (welded) from laser cut steel and did the electronics. Unit tests for performance + graphs in Excel. Many components were prototyped with 3D Printing and the steel frame prototype was laser-cut on my 50W CO2 Laser Cutter in Acrylic.
- Converted a massive metal cutting mill into CNC. This involved machining components, swapping leadscrews for ballscrews, and adding Servo Motors and Drivers. It was a 500KG machine that could move at 400mm/s with a modified 1KW 5K RPM spindle. Tungsten Carbide cutting tools would shatter. It was terrifying. Later converted it to also be a 3D printer."