James R Booth

PROFFESIONAL SUMMARY

Data professional with 10 years experience in Process & Manufacturing Engineering. Experience with modern data tools including Apache Airflow, Databricks, Data Factory, Azure and AWS. Experience with building Python applications, building and refining ETL processes, utilising cloud technology and REST API. 3+ years experience with Python & SQL. Experience with Django front end development.

WORK HISTORY

Data Engineer, Harding+: June 2023 – Present

- Built Trading Report generator to email PDFs of trading to executives using Power BI Rest API, MS Graph API and Managed Airflow in Azure Data Factory.
- Built infrastructure dashboards showing data lineage from various data sources, refresh status, data access using REST API and Managed Airflow in Azure Data Factory.
- Created public plugin for SQLFluff to lint missing table hints for TSQL No-locks and batch fix SQL scripts.
- Re-created legacy BI stored procedures in Databricks using Azure Data Lake to improve performance, enabled git version control with Azure dev ops in preparation for moving to medallion architecture.
- Built Microsoft Teams chatbot using webhooks and adaptive cards to notify area managers when sales files were missing from Microsoft Business Central, using Apache Airflow, Azure Functions and MS Teams REST API.
- Built systems to trigger Power BI dataset refreshes using REST API, removing the need for scheduled refreshes.

Data Engineer, jbooth.dev: November 2022 – Present

- Built ETL system for IoT application with MQTT & AWS IoT Core
- Built system for analysing large data sets for iMBD film ratings with PySpark
- Built linear regression model for house price predictions using Sci-kit learn
- Built data visualisations for Formula 1 race data with Tableau
- Analysed financial and healthcare data with MySQL & PostgreSQL
- Built portfolio website to showcase work with Django, projects are regularly added

Senior Process Engineer, Microchip Technology: November 2021 – November 2022

- Built ETL system for extracting, wrangling, and storing manufacturing data using Python & SQL.
- Built manufacturing KPI dashboard for OEE with Django & Plotly.
- Built tool to migrate legacy data from Excel spreadsheets into Microsoft SQL Server.
- Built Django web apps for updating manufacturing tool inventory.
- Built IoT system for real time measurement of curing ovens using PIC-IOT boards and Hive MQ
- Built Python apps to support manufacturing such as barcode scanners
- Carried out hypothesis testing for introducing new manufacturing materials and process tooling, utilising chi-squared, ANOVA, and linear regression.

Process Engineer, Rockley Photonics: January 2021 – August 2021

- Used Jupyter notebooks to program machine vision system for silicon wafer mapping
- Improved Cognex image detection through hypothesis testing and design of experiments using Minitab & Python
- Built ETL pipeline to log machine data to PostgreSQL server

Research Engineer, The Manufacturing Technology Centre: January 2018 – December 2020

- Part of the first Smart Factory in the UK. Worked on IoT systems to track PCB location in a factory using RFID
- Carried out statistical analysis for manufacturing improvements on customer site visits

Senior Engineering Technician, Dynex Semiconductor: July 2013 – December 2017

- Responsible for process improvement using statistical and six sigma methods

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TECHNICAL PROFILE

Technology:
Python, Airflow, Databricks, Data Factory, MySQL, PostgreSQL, TSQL, Power BI, Tableau

Python:
Built ETL processes using Airflow DAGs

Developed code using SOLID principles

Enabled event driven refreshes in Power BI using REST API

Built ETL system for IoT application with paho mqtt & AWS IoT Core

Developed full stack web applications with Django

Developed interactive web forms with Django for logging data to Microsoft SQL server
Unit testing with PyTest & Django

Server & Cloud:
Setup and management of AWS Servers including EC2, RDS, IAM & IoT Core
Setup and management of MySQL Database Server
Creation of Databricks clusters on Azure
Built and maintained Azure function apps
Vnet configuration for Datafactory

CERTIFICATIONS

- ILSS Six Sigma Green Belt
- AWS Cloud Practitioner
- PRINCE2 Foundation

EDUCATION

- BSc (Honours) Economics & Mathematical Sciences (*in progress, graduation 2026) – The Open University*
- Certificate of Higher Education in Economics and Personal Finance – *The Open University*
- BTEC Higher National Certificate in Electrical & Electronic Engineering – *Lincoln College*
- BTEC Diploma in Electrical & Electronic Engineering – *Lincoln College*
- BTEC Advanced Certificate in Electronic Engineering – *ICS learn*
- Time Served Apprenticeship

PUBLICATIONS

- J. Booth et al., "High Reliability Large Area Substrate Solder Interconnect by Embedded Mesh Technique," PCIM Europe 2017; International Exhibition and Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management, Nuremberg, Germany, 2017, pp. 1-7.
- Y. Wang, J. Booth et al., "Development of High Thermal Performance Automotive Power Module with Dual Sided Cooling Capability," PCIM Europe 2017; International Exhibition and Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management, Nuremberg, Germany, 2017, pp. 1-5.
- J. Booth, K. Vijay, P. Mumby-Croft, M. Packwood, K. Evans and A. Dai, "Novel Technique to Reduce Substrate Tilt & Improve Bondline Control between AlN Substrate and AlSiC Baseplate in IGBT Modules," PCIM Europe 2016; International Exhibition and Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management, Nuremberg, Germany, 2016, pp. 1-8.

Versioning:
Source code version control with git, GitHub & Azure Dev Ops

IDE:
VS Code, Jupyter, PyCharm & Thonny

Operating Systems:
Mac OS Ventura (M1/M2 & x86), Debian/Ubuntu Linux, Amazon Linux 2, Windows 11, WSL2