Michael Willy, Data Engineer

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- I hold seven years of developer experience in global operations manufacturing and research data.
- I use Python, SQL & C# to automate reporting and enable multi-dimensional visualization.
- I write both interactive and batch applications for relational data management and numerical processing.

SKILLS

Python (Polars & Pandas, NumPy, Scikit-Learn, SQLAlchemy, Dash Plotly), C#, Typescript, Git, Power BI
SQL (Oracle, Microsoft, SQLite), Amazon S3, Azure DevOps, Bash & PowerShell, Cron, Docker, Linux

EXPERIENCE

Senior Software Engineer   Research Chemical Company   Media, PA   December 2024 – Present
- I develop a C#/.Net & Typescript Laboratory SAP-derived quality system. I focus on data flow and REST APIs using a model-view-controller (MVC) architecture.
- I coordinate asynchronously with global developer and user teams in US and Asia using Git and Azure DevOPs for reviews and deployment.
- I developed network label printing automation for custom user templates with PDF preview and job status feedback.
- I developed an integrated chart to inner join and highlight distinct key categories using Typescript and C#/.Net LINQ.
- I write database objects using Microsoft SQL, NHibernate ORM, & C#/.Net LINQ for the API and model.

Data Engineer   Research Chemical Company   Wilmington, DE   March 2023 – December 2024
- I owned the data operations for the enterprise R&D Electronic Lab Notebook (ELN) application, serving 1,000 global internal users with a C#/.Net & Oracle PL/SQL back end.
- I developed automated document access and download pattern monitoring. I routinely joined sets from other app databases, active directory, and REST APIs.
- I wrote a PDF download API scraper using Python HTTP requests to export records for a business divestiture. This saved the company a $70k vendor quote and delivered in three weeks.
- I built Python Polars CSV automation with LDAP-tree and SQL queries. These included user privileges, access update validation, and developer environment data anonymization.

Data Scientist   Research Chemical Company   Wilmington, DE   September 2020 - March 2023
- I developed Python & SQL jobs to extract lab data, calculate time series analysis and fluid dynamics values, and transform to Oracle & Microsoft SQL databases using Pandas and SQLAlchemy.
- I wrote a data pipeline on a distributed network using a file tree search and a namespace-UUID key. The user website hosted parameterized SQL reports via Python API with selectable records.
- I built a Dash Plotly animation and Jupyter Notebooks interface, command line interface, and a Microsoft Power BI dashboard to create a Fast-Fourier Transform (FFT) visualization. This displaced a $300k vendor project quote.

Project Engineer   Research Chemical Company   Wilmington, DE   September 2018 - September 2020
- I automated time series database reporting with Python Pandas & SQL. Included was equipment thumbprinting using linear regression of pressurized flow.
- I ran equipment installation, automation machine guarding, and start up for nine manufacturing machines. This resulted in $800k capital successfully deployed in two years.

EDUCATION

Master of Science in Applied & Computational Mathematics
University of Washington, Seattle, WA   December 2023
Bachelor of Science in Chemical Engineering & Minor in Mathematics
Drexel University, Philadelphia, PA   June 2011