

Michael Willy, Data Engineer

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- I hold seven years of developer experience in global manufacturing and research data.
- I use C#, Python, & SQL to automate API data aggregations, user interactions, and testing.

SKILLS

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

EXPERIENCE

Senior Software Engineer New Semiconductor Company Media, PA November 2025 – Present

- I develop a C#/.Net, SQL, & Typescript Laboratory SAP-quality system. I focus on data transformations with LINQ and designing APIs for 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 built a custom ERP report package and visual charts to inner join and highlight key fields using C#/.Net LINQ and Typescript.
- I developed a network label printing service with PDF preview and a job status interface.
- I dimension and transform data using Microsoft SQL, NHibernate ORM, & C#/.Net LINQ for the API and model.

Senior Software Engineer Chemical Company R&D Media, PA December 2024 – November 2025

- I developed a C#/.Net, SQL, & Typescript Laboratory SAP-quality system. I designed APIs for a model-view-controller (MVC) architecture.
- Company spun off to New Semiconductor Company.

Data Engineer Chemical Company R&D 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 wrote a Cron + SQL + mail utils document access and download pattern monitoring service. I routinely joined sets from external databases, active directory, and APIs.
- I wrote a PDF API downloader using Python HTTP requests to export documents for a business divestiture. This saved the company a \$70k vendor quote and delivered in three weeks.
- I built Python Polars dataframe reporting with LDAP-tree and SQL queries. These included access controls, divestiture partitions, and data anonymization.

Data Scientist Chemical Company R&D Wilmington, DE September 2020 - March 2023

- I developed Python & SQL jobs to extract lab data, run time series analysis and fluid dynamics calculations, and transform to Oracle & Microsoft SQL databases using Pandas and SQLAlchemy.
- I wrote a data pipeline on a distributed filesystem tree and a UUID key. The user website hosted parameterized SQL reports from a Python API.
- I built a Fast-Fourier Transform (FFT) visualization digital signal processing, Plotly animation, Jupyter notebook, plus a command line tool, displacing a \$300k vendor project.

Project Engineer Chemical Company R&D 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