


Justin Minnion

Automation Engineer and Data Scientist

Automation Engineer with more than twelve years of multi-industry experience in multiple engineering roles. Recently completed M.S. Data Science degree program and eager to solve problems with data. Noted for capability to break down complex topics into understandable and relatable concepts.

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 West Point, PA

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Skills

cGMP	SDLC	Emerson DeltaV	Rockwell / Allen-Bradley	Manufacturing
Advanced Python	Data Acquisition	Data Preprocessing	Data Modeling / ML	PowerApps
Visualizations	JavaScript/CSS	PySpark	Deep Learning for NLP	SQL

Education

M.S. in Data Science

Drexel University (Philadelphia, PA)

GPA: 4.00 / 4.00

June 2023

Capstone Project: "Tweet Turing Test: Detecting Disinformation on Twitter" – github.com/disinfo-detectors/tweet-turing-test

B.S. in Chemical Engineering

The Pennsylvania State University (University Park, PA)

GPA: 3.31 / 4.00

May 2011

Experience

Data Scientist | MRL NDS Digital Operations & Innovation | Merck & Co, Inc. | West Point, PA

Jun 2023 – Present

- Supporting preclinical development / lab animal resource organization through a gig opportunity.
- Modernizing data-reliant processes to increase capability while decreasing administrative burden.
- Designing and building a PowerBI dashboard, including data acquisition and transformation pipeline, to provide resource tracking insights for senior leadership. Replacing a fully manual / Excel-based legacy tool.
- Clearly define stakeholder requirements, gather user stories, elicit regular feedback, deliver on commitments.
- Champion accessibility in UX/UI design to create equitable and inclusive software.

Automation Engineer | DMO Barrier Operations | Merck & Co, Inc. | West Point, PA

Jan 2019 – Present

- Provide daily support to multiple GMP-regulated production lines for the formulation and vial/syringe filling of sterile liquid vaccine products.
- Troubleshoot issues with industrial automation solutions including Emerson DeltaV DCS, Rockwell PLCs.
- Design, implement, and test automation changes while carefully applying change control strategies.
- Author and execute installation and operational qualifications of new / upgraded automated systems.
- Define technical requirements for new / upgraded automation systems, evaluating risks/needs/benefits.
- Collaborate with a cross-functional team of operations staff, deviation management, and project managers.
- Act as system administrator for multiple relational databases storing critical process / regulatory data.
- Create context for production data by designing and maintaining InfoBatch batch report configurations.
- Identify and investigate process trends for process deviations or new/existing automation changes.
- Communicate effectively both orally and in writing:
 - Able to speak knowledgeably about automated systems to support investigations, audits, inspections.
 - Apply technical writing skills to author/edit design documents, SOPs, incident reports.
- Mentor and support junior automation engineers by providing training and guidance.
- Crafted highly lauded training materials for onboarding of new automation team members.
- Lead Automation member of West Point Data Analytics Community of Practice.

Additional Experience

Process Controls / Systems Engineer | Air Products and Chemicals, Inc. | Allentown, PA

Jul 2013 – Dec 2018

- Implement automation solutions through distributed control systems and programmable logic controllers for world-class hydrogen, nitrogen, oxygen, and helium production facilities.
- Develop DCS code, including safety code, for advanced control strategies using Siemens PCS7.
- Develop and test HMIs for complex server/client architectures.
- Collaborate with engineering and operations teams to conduct thorough testing of programmed systems.
- Responsible for the creation of piping & instrumentation diagrams and shutdown interlock tables.
- Lead design hazard reviews, combining established practices and standards with innovative ideas.
- Specialize in design of Pressure Swing Adsorber units for hydrogen and helium purification.
- Interface with vendors directly to specify and troubleshoot new instruments and equipment.
- Conduct factory acceptance tests for new equipment. Inspect equipment at fabrication shops and during site construction. Verify that design requirements are followed, address deficiencies with creative solutions.
- Lead validation of critical safety systems at new and operating plants to ensure safety targets are met.
- Lead training courses for operations staff at new plants.

Process Engineer | Air Products and Chemicals, Inc. | Allentown, PA

May 2012 – Jul 2013

- Responsible for efficiency improvements of operating hydrogen plants across North America.
- Improved productivity through multivariate optimization with Aspen Plus. Notable improvements include:
 - Survey of primary reformer and high temperature shift catalysts (\$90M/yr)
 - Optimized steam production during turndown (\$75M/yr)
- Combined statistical analysis of operating data and collaboration with operators and plant management to diagnose and troubleshoot issues.
- Supervised catalyst and adsorbent replacements during multiple plant outages, maintaining safety while ensuring proper installation and waste disposal.
- Planned plant outages as part of a multifunctional team.
- Participated in initial plant performance test to compare newly constructed plant to its design simulation.

Plant Production Engineer | Air Products and Chemicals, Inc. | Wichita, KS

Jun 2011 – May 2012

- Responsible for daily oversight and engineering support of plant utilities.
- Supported Stable Ops implementation, Near Miss mitigation, and Cost of Nonconformance analysis.
- Analyzed downtime and delay data to identify problems and guide targeted reliability efforts.
- Participated in operating plant hazard reviews and drove closure of action items.
- Created tools using Excel and Visual Basic to automate and streamline monitoring and reporting systems.

Additional Skills

- Advanced Python, Pandas, NumPy, matplotlib/seaborn, Plotly
- Proficient in use of MS Power Platform, scikit-learn, Jupyter tools, Orange, Tableau, Git, Dataiku, AVEVA PI
- Application of transfer learning via pre-trained large language models (BERT, RoBERTa, BERTweet)
- Programming experience with PySpark, PyTorch, regular expressions, Flask, Django, SQL (MS SQL, Oracle), NoSQL (MongoDB), JavaScript/jQuery, HTML/CSS, Visual Basic, C++, Java, R, Fortran
- Experience with Windows Server administration, Linux, VMware/ESXi
- Use of cloud computing resources such as GCP (Dataproc, Vertex AI) and AWS (EC2, S3, SageMaker, Redshift)
- Completed Merck's *GenAI Thought Leader Bootcamp*, early adopter and advocate of GPTeal