JAVAN WHITNEY-WARNER

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Process Design Gas Flow Processes Breakthrough Apparatuses Controls & Automation Programmable Logic Controller Coding & Interfacing Design of Experiments Data Management Data Analysis

Chemical Engineer by training, with skills in process control, programming, experimental design, and data handling learned through the design and building of analytical apparatuses to support Research & Development projects funded by the Department of Defense (DoD). Seeking to apply these skills to support revenue-generating commercial products.

SKILLS

Fabrication

- Computer Aided Design
 (CAD)
- Training in mill, drill press, router, soldering, and electrical wiring

Software

- Ladder logic
- Python
- MATLAB
- GitHub version control

Data Engineering

- Design of Experiments (DOE)
- Automated data parsing
- Tableau

PROJECT EXPERIENCE

Senior Process Engineer

NuMat Technologies, Skokie, IL – Oct 2022-Present

Sentinel[™]: Chemical and biological protection developmental product portfolio that spans several DoD-funded projects, representing ~\$1B potential end-market value

- Designed and built an automated packed-bed breakthrough system to establish quality control of Sentinel materials so that it could transition from New Product Introduction (NPI) Phase 4 to Phase 5
 - Triaged an overspent project to deliver trustworthy quality data in time for nearterm production rounds to reduce reliance on expensive external testing
 - Completed a Pareto Analysis on all instruments to recommend the lowest-cost, highest-impact improvements, targeting a precision of +/-3%

Process Engineer

NuMat Technologies, Skokie, IL – Oct 2020-Oct 2022

Decontamination Fabrics: Development of a textile intended for the counterproliferation of Chemical Warfare Agents (CWAs) using Sentinel[™] materials, reaching NPI Phase 3 with a patent pending and a potential \$100M end-market value

- Designed and built an automated dual-flow permeation system to measure the breakthrough time of a vapor stream of a CWA simulant through textile samples
 - Built a programmable logic controller (PLC) for controlling temperatures, flows, actuated valves, and safety interlocks within the system

- Built a web-based controller using python to interface with the PLC, including designing and coding the front-end SVG
- Created scripts using Python and YAML for automating steps of the test process
- Created a Python script for parsing and syncing GC-FPD/MS data to an internal database so that results could be viewed using the internal laboratory information management system (LIMS)
- Performed Measurement System Analysis (MSA) and replication studies to analyze and improve the process, reducing the system CV to 13%
- Designed and fabricated custom sample holders to improve upon existing ASTM test cells for permeation testing
- Migrated project data from local files (i.e., individual excel sheets) to centralized spreadsheets and databases (Google Sheets, LIMS) and demonstrated the utility of project-specific Tableau dashboards to enable data-driven decision making

EDUCATION

Northwestern University, Evanston, IL

McCormick School of Engineering & Applied Science • B.S., Chemical Engineering Bienen School of Music • Minor, Music Technology Institute for Sustainability and Energy at Northwestern • Certificate, Sustainability & Energy Cum Laude • 2020

PUBLICATIONS

Ye, J., Dombrowski, J. P., Hu, X., **Whitney-Warner, J.**, Guo, S., Kung, M. C., & Kung, H. H. (2020). Production of H2O2 during Au/C catalyzed aerobic oxidation of 1, 2-propanediol. *Applied Catalysis A: General*, 599, 117616.

PROFESSIONAL MEMBERSHIPS

Society of Woman Engineers (SWE) American Institute of Chemical Engineering (AIChE)

INTERESTS Audio Engineering Sustainability