

Experience

Washington Metropolitan Area Transit Authority (WMATA), Washington DC

Mechanical Controls Engineer

Jun 2019—Present

- Updated and maintained design criteria, specifications, sequences of operation, and standard drawings for the control of industrial and office HVAC, pumping, and other systems.
- Reviewed contract submittals for projects with budgets from \$50 million to \$2.8 billion.
- Led several inspections and participated in many other inspection and commissioning teams.
- Represented mechanical interests in ongoing “Industrial Internet of Things” (IIoT) projects.
- Supported maintenance personnel with troubleshooting of equipment in the field.
- Modified PLC and HMI programs as necessary.

Praxair, Tonawanda NY

Advanced Process Controls Engineer

Jul 2013—May 2018

- Deployed model predictive control (MPC) to improve efficiency and reliability at nine cryogenic air separation plants globally:
 - Identified models of plant operation from historical data.
 - Programmed controller behavior in simulation.
 - Installed controllers on site and created operator HMIs.
 - Tuned controllers after feedback from stakeholders and observing real-world behavior.
 - Saved ~\$300k/year (each) through market-specific optimizations.
- Simplified system upgrades and deployments with PowerShell scripts and Hyper-V.
- Configured and demonstrated SCADA and MPC simulations for biennial internal training.
- Supported networking and systems issues globally.
- Monitored and supported MPC performance in the Scandinavian region.

University of Massachusetts Lowell, Lowell MA

Research Assistant

Jan 2012—Jul 2013

- Wrote Perl scripts to convert rheological data formats. <https://github.com/iemcd/rheology>
- Published: McDougall, I., N. Orbey, and J. M. Dealy, “Inferring meaningful relaxation spectra from experimental data,” *J. Rheol.* **58**, 779 (2014) <http://dx.doi.org/10.1122/1.4870967>

Education

University of Massachusetts Lowell, Lowell MA

BSE Chemical Engineering, Mathematics Minor

May 2013

Skills

Languages: JavaScript, R, PowerShell, MATLAB, Perl, bash, VBA, Python, PLC Ladder Logic

Software: Aspen DMC+, GE iFix, Hyper-V, COMSOL Multiphysics, Simulink, Aspen Plus,

Matrikon, SIMCA P+, Microsoft Office, Microsoft Visio, AutoCAD, Autodesk Revit

General: Data Analysis, Statistics, Process Control, Chemistry, Programming, Process Engineering,

Design of Experiment, Process Simulation, Distillation, OPC, Modbus