Daniel V. Dixon, Ph.D.

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SKILLS

- Data analysis and data visualization
- Process Simulation
- Design of Experiments (DoE)
- Technical writing and presentations
- Programming: Python (NumPy, SciPy, Matplotlib, scikit-learn, pandas), Julia
- Project planning
- Teaching and supervising students

EXPERIENCE

Graduate Student Researcher and Teaching Assistant 2016 – present
Department of Chemical and Materials Engineering, University of Alberta, Edmonton, Alberta

- Developed simulations in Python and Julia for polymerization kinetics and mineral tailings flocculation
- Collected and processed lab instrument data in Python for analysis and visualization
- Designed experiments, developed protocols, collected and analyzed data, and published the results for research projects in tailings treatment and polymer synthesis culminating in a PhD dissertation
- Teaching assistant in Chemical Engineering Design, Mass Transfer, and Heat Transfer

Process Engineer (E.I.T.) 2014 – 2016
WSP Canada Inc., Calgary, Alberta

- Provided process engineering support for multiple projects including oil well sites, gathering pipelines, and natural gas processing facilities
- Supported existing natural gas facilities in troubleshooting and optimization
- Produced technical reports, heat and material balances, process flow diagrams, and documentation for feasibility studies, FEED, and detailed engineering stages of projects
- Experience with process simulations (HYSYS, Symmetry), dispersion modelling, emissions calculations, equipment design, process safety systems, and HAZOPs

Graduate Student Researcher and Teaching Assistant 2011 – 2013
Department of Chemical Engineering, McGill University, Montreal, Quebec

- Experience in image processing, nanoparticle characterization, microscopy, and microbiology
- Designed experiments, collected and analyzed data, and published findings for a master's thesis
- Teaching assistant in Data Analysis and Design of Experiments and Physical Chemistry

Research Assistant - NSERC Undergraduate Research Award Summer 2010 and 2011
Department of Chemistry, Queen's University, Kingston, Ontario
Computational Chemistry (Summer 2011)

- Developed and ran molecular dynamics simulations in Fortran in collaboration with an experimental group studying solvent influences on adhesion between thin films leading to a publication

Green Chemistry/Catalysis (Summer 2010)

- Evaluated the recyclability of water-soluble catalysts using a CO_2 responsive water additive leading to two publications

Production Engineering Intern Summer 2009
Recapture Metals Ltd., Peterborough, Ontario (Now a part of Neo Performance Materials, Inc.)

- Assisted production engineer and QA/QC team in the manufacturing of gallium and indium

EDUCATION

PhD in Chemical Engineering 2023
University of Alberta, Edmonton, Alberta

MEng (Thesis) in Chemical Engineering 2014
McGill University, Montreal, Quebec

BSc in Engineering Chemistry 2011
Queen's University, Kingston, Ontario