

# Mike Dereviankin

## CHEMOMETRIC CONSULTANT

Forensic toxicology and data science consultant with a focus on interpretation & education for the utilization of modern statistical approaches and machine learning to interpret multi-variant chemical data. Primary consulting experience with private companies, litigation firms, regulatory agencies, oil & gas, chemical industry, and academia.

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## EDUCATION

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### McMaster University, Hamilton, ON

#### Masters of Science, Analytical Biogeochemistry, 2018-2020

Dissertation [Developing analytical methods utilizing comprehensive two-dimensional gas chromatography time-of-flight mass spectrometry to monitor biodegradation of alkylated poly-aromatic hydrocarbon isomers within an oil sand tailing pond.](#)

Advisor Dr. Gregory F. Slater

Extracurriculars McMaster University Varsity Water Polo & Swimming Team

### University of Guelph, ON

#### Bachelor of Science, Biological & Pharmaceutical Chemistry (Honours), 2012-2017

Dissertation [Reduction of halocarbons to hydrocarbons by NADH models and NADH.](#)

Advisor Dr. Michael K. Denk

Extracurriculars University of Guelph Gryphon's Varsity Swim Team

Distinctions [USports Academic All Canadian](#)

## WORK EXPERIENCE

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Dec 2021 - Present **Dereviankin Consulting Inc.**, Principal Consultant

Mar 2020 - Present **Chemistry Matters Consulting Inc.**, Consultant

2018 - 2020 **McMaster University**, Teaching Assistant

Sep 2017 - Sep 2018 **Labstat International ULC. Kitchener**, Quality Auditor

## EXPERTISE

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MAIN DOMAINS: **Analytical chemistry, Statistics, Data Science, Biomonitoring, Epidemiology**

**Statistics** Univariate Statistics, Multivariate Statistics, Parametric Statistics, Non-Parametric Statistics, Data Pre-Processing, Validation  
Error analysis, Bayesian statistics

**Programming** Python, R, Matlab, JSL

**Language** English, Russian, Ukrainian

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# CONSULTING EXPERIENCE

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## Environmental Forensics Investigation

- 2021 - present **Environmental Forensics Investigation of Environmental Contaminants in Portland Harbor Superfund Site**  
*Stanley Black & Decker, Rhode Island, USA*  
Used recent sampling results to determine fingerprints to conduct source apportionment of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/Fs), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs). Extensive statistical analysis with various receptor models to determine unique end-members and allocate the contribution of sources on a sample-by-sample basis.
- 2020 - present **Environmental Forensics Investigation of Environmental Contaminants in Centredale Manor Restoration Project Superfund Site**  
*FMC Corporation, Philadelphia, PA, USA*  
Chemometric workflow of environmental contaminant data from the Portland Harbor Superfund site. Extensive work developing dashboards for showcasing source apportionment, dimensionality reduction and predictive modelling interactively during litigation support meetings. The case involves the chemical fingerprinting of polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), polychlorinated biphenyls (PCBs) and other environmental contaminants.
- 2020 - 2021 **Environmental Forensics Investigation of Heavy Metal Forensic Investigation**  
*Cenovus, Calgary, AB, Canada*  
Univariate and multivariate statistical analysis of groundwater heavy metal data to compare site-wide dispersion in comparison to background concentrations.
- 2020 - 2021 **Environmental Forensic Investigation of Environmental Contaminants at Hardisty Terminal Facility**  
*Husky Oil Operations Ltd., AB, Canada*  
Chemometric workflow of environmental contaminant data from the Portland Harbor Superfund site. Extensive work developing dashboards for showcasing source apportionment, dimensionality reduction and predictive modelling interactively during client meetings. The project involved the chemical fingerprinting of sediment samples for polyaromatic hydrocarbons (PAHs) in conjunction with plume modelling.

## Data Science Consulting

- 2020 - present **Chemometric Assessment of Microbial Volatile Organic Contaminants**  
*Chaminade University of Honolulu, Honolulu, HI, USA*  
Chemometric workflow examining temporal microbial degradation change in volatile organic contaminant fingerprint under controlled conditions. Presentation of interactive dashboards in Plotly (R Studio).
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## Human Biomonitoring Investigation

- 2020 - present **Exposure Assessment Evaluating Blood Data for Alleged PCB Exposure**  
*Monsanto Company, St. Louis, MO*  
Providing chemometric analysis of plaintiff blood data in connection with lawsuits or other claims pending against Monsanto involving alleged polychlorinated biphenyl (PCB) exposure and blood concentrations for plaintiffs. Provided expert data analysis on reference US general population (NHANES) as supporting evidence in expert witness reports.
- 2020 - 2021 **Exposure Assessment Evaluating Blood Data for Alleged PCB Exposure**  
*Monsanto Company, St. Louis, MO*  
Cases :  
*Bard, et al. v. Monsanto, et al.*  
*Beulter, et al. v. Monsanto et al.*  
*Soley, et al. v. Monsanto et al.*  
Providing chemometric analysis of plaintiff blood data in connection with lawsuits or other claims pending against Monsanto involving alleged polychlorinated biphenyl (PCB) exposure and polychlorinated dibenzofuran (PCDF) exposure and blood concentrations for plaintiffs from the Sky Valley Education Center (SVEC) in Monroe, Washington. Provided expert data analysis on reference US general population (NHANES) as supporting evidence in expert witness reports.

## RESEARCH OUTPUT

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### Peer-Reviewed Publications

1. Denk, M. K., Milutinović, N. S., & Dereviankin, M. Y. (2019). *Reduction of halocarbons to hydrocarbons by NADH models and NADH*. Chemosphere.  
<https://doi.org/10.1016/j.chemosphere.2019.05.169>

## CONFERENCE PROCEEDINGS

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1. Dereviankin, M., Sandau, C. (2022). *Polychlorinated Biphenyl (PCB) Fingerprints and Composition End-Members of the US General Population Using NHANES 2003-2004*. Dioxin Conference 2022.
  2. Megson, David., Sandau, C. (2022). *Source Apportionment of Polychlorinated Biphenyl (PCB) Comparing Statistical Methods and Identifying, "Non-Aroclor" Sources*. Dioxin Conference 2022.
  3. Dereviankin, M. (2022). *Source apportionment of Polychlorinated biphenyls (PCBs) in sediment using different receptor models: A case study on Portland Harbor Superfund Site, Oregon, USA*. SETAC North America 43rd Annual Meeting.
  4. Sandau, C., Dereviankin, M. (2021). *Unscrambling Contaminant Mixtures to Determine Sources and Chemical Fingerprints – PAH Case Study Using RAMP Oil Sands Monitoring Data*. AQRD Virtual Seminar.
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5. **Dereviankin, M., El-Warakky, M., Warren, L.A., Slater, G.F. (2020).** *Monitoring Biogeochemical Cycling in an Oil Sand Pit Lake via High-Resolution Spatial Distribution of Organic Chemicals.* GeoConvention.

## TEACHING

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1. **Dereviankin, M. (2023).** Data Analytics and Statistics in Quantitative Chemical Analysis – Chemometric Workflow for Forensic Investigations (Course ID: SC120). Pittcon 2023.
2. **Dereviankin, M. (2022).** Data Analytics and Statistics in Quantitative Chemical Analysis – Chemometric Workflow for Forensic Investigations (Course ID: SC14468). Pittcon 2022.
3. **Dereviankin, M. (2021).** Data Analytics and Statistics in Quantitative Chemical Analysis – Chemometric Workflow for Forensic Investigations (Course ID: SC7843). Pittcon 2021.

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