

Data Understanding, Data Analysis, and Data Science

Volume 4 – Techniques of Data Analysis

Advance your analytical skillset with **Techniques of Data Analysis**, the fourth volume in the **Data Understanding, Data Analysis, and Data Science** series. This volume explores specialized topics that push the boundaries of standard methods, offering insight into how data science adapts to complex and dynamic challenges.

Chapters cover queueing systems, Bayesian analysis, anomaly detection, text mining, sentiment analysis, and data stream mining. Each topic is presented with an emphasis on conceptual clarity and supported by practical examples that demonstrate the diversity of real-world applications.

By extending the tool-agnostic and understanding-first philosophy of the series, this volume prepares readers to approach advanced techniques with flexibility and purpose. Whether read in tandem with instruction or as a self-directed resource, **Techniques of Data Analysis** is a guide to the nuanced methods that enrich modern data science.



About the Author

Patrick Boily is an Assistant Professor in the Department of Mathematics and Statistics at the University of Ottawa. He earned his Ph.D. in Mathematics in 2006 and is the author of seven textbooks on mathematics, statistics, and data science, available at idlewyldanalytics.com.

Since 1999, he has taught more than 75 courses at the University of Ottawa, the Université du Québec en Outaouais, and Carleton University. From 2008 to 2012, he served as a federal public servant, contributing to several projects including the award-winning Canadian Vehicle Use Study. From 2012 to 2019, he launched and managed Carleton University's Centre for Quantitative Analysis and Decision Support (CQADS), and he is a founding member of the Data Action Lab, which offers workshops, short courses, and consulting services in data analysis.

Patrick's academic work focuses on the application of mathematics and statistics to evidence-based decision support. He has provided consulting services to a wide range of public and non-profit organizations, including United Way, the Public Health Agency of Canada, the Canadian Air Transport Security Authority, and the Department of National Defence. His areas of expertise include operations research, data science and predictive analytics, stochastic modelling, and simulation.

Patrick is an avid hockey player, cross-country skier, cyclist, mountain biker, and swimmer; he enjoys crosswords, playing the guitar, and watching British murder mysteries. He lives with his family in Wakefield, Quebec.