

Contents

1	Introduction: From Batch to Online Machine Learning	1
	Thomas Bartz-Beielstein	
2	Supervised Learning: Classification and Regression	13
	Thomas Bartz-Beielstein	
3	Drift Detection and Handling	23
	Thomas Bartz-Beielstein and Lukas Hans	
4	Initial Selection and Subsequent Updating of OML Models	41
	Thomas Bartz-Beielstein	
5	Evaluation and Performance Measurement	47
	Thomas Bartz-Beielstein	
6	Special Requirements for Online Machine Learning Methods	63
	Thomas Bartz-Beielstein	
7	Practical Applications of Online Machine Learning	71
	Steffen Moritz, Florian Dumpert, Christian Jung, Thomas Bartz-Beielstein, and Eva Bartz	
8	Open-Source Software for Online Machine Learning	97
	Thomas Bartz-Beielstein	
9	An Experimental Comparison of Batch and Online Machine Learning Algorithms	105
	Thomas Bartz-Beielstein and Lukas Hans	
10	Hyperparameter Tuning	125
	Thomas Bartz-Beielstein	
11	Summary and Outlook	141
	Thomas Bartz-Beielstein and Eva Bartz	

Appendix A: Definitions and Explanations 145

Appendix B: Supplementary Materials 149

Glossary 151

Index 153