

DETAILED CONTENTS

Series Editor Introduction	xvii
Acknowledgments	xix
About the Authors	xxi
Acronyms and Notation	xxiii
Chapter 1 What is Recurrence Analysis?	1
The Recurrence Plot	2
Deriving Recurrence Measures	6
Advantages and Limitations of Recurrence Analysis	10
Notes	12
Chapter 2 The Basics of Recurrence Analysis—Univariate RQA	13
Parameter Estimation	14
The Delay Parameter τ	20
The Embedding Parameter m	23
The Radius Parameter ϵ	25
Further Parameters	27
Summarizing RQA Outputs	29
Notes	33
Chapter 3 The Bi-Variate Case: Cross-Recurrence Quantification Analysis	35
Introduction to CRQA	36
Standardization	37
Alignment	38
The Cross-Recurrence Plot (CRP)	38
Using CRQA With Continuous Data: Stock Market Fluctuations	41
Using CRQA With Categorical Data	43

Chapter 4	The Diagonal-Wise Cross-Recurrence Profile (DCRP)	47
	Diagonal-Wise Cross Recurrence Profiles (DCRP)	48
	Building a Baseline by Means of Shuffling	51
Chapter 5	Windowed Recurrence Analysis	55
	Introduction to Univariate Windowed Recurrence Analysis	57
	Windowed Cross-Recurrence Analysis	59
	Using Windowed Recurrence Analysis for Continuous Monitoring	60
Chapter 6	Multivariate Analysis: Multidimensional Recurrence Quantification Analysis (MdRQA)	63
	Introduction to MdRQA	64
	Multidimensional Cross-Recurrence Quantification Analysis (MdCRQA)	72
	An Example Using Multidimensional RQA on Political Polling Data	75
Chapter 7	Sample Analysis and Practicalities	79
	Calculating General Parameters	79
	Time Series Length	86
	Computing Confidence Bounds Via Bootstrapping	87
	Parameter Exploration	93
	Surrogate Analysis	96
	Dealing With Multiple Recurrence-Measures	98
Chapter 8	Conclusion	103
	Further Applications	104
	Finding Software	105
	A Final Note	106
References		109
Index		115