1. Record Nr. UNINA9911107963203321

Autore	McCue Colleen
Titolo	Data mining and predictive analysis : intelligence gathering and crime analysis / / Colleen McCue
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Butterworth-Heinemann, c2007
ISBN	9786610636501 9781280636509 1280636505 9780080464626 0080464629
Edizione	[1st ed.]
Descrizione fisica	XXVII, 393 p.; ; 24 cm
Classificazione	54.64
Disciplina	363.25/6
Soggetti	Crime analysis Data mining Law enforcement - Data processing Criminal behavior, Prediction of
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover -- Title page -- Copyright Page -- Table of Contents -- Foreword -- Preface -- Introduction -- How To Use This Book -- Bibliography -- Introductory Section -- 1 Basics -- 1.1 Basic Statistics -- 1.2 Inferential versus Descriptive Statistics and Data Mining -- 1.3 Population versus Samples -- 1.4 Modeling -- 1.5 Errors -- 1.6 Overfitting the Model -- 1.7 Generalizability versus Accuracy -- 1.8 Input/Output -- 1.9 Bibliography -- 2 Domain Expertise -- 2.1 Domain Expertise -- 2.2 Domain Expertise for Analysts -- 2.3 Compromise -- 2.4 Analyze Your Own Data -- 2.5 Bibliography -- 3 Data Mining -- 3.1 Discovery and Prediction -- 3.2 Confirmation and Discovery -- 3.3 Surprise -- 3.4 Characterization -- 3.5 "Volume Challenge" -- 3.6 Exploratory Graphics and Data Exploration -- 3.7 Link Analysis -- 3.8 Nonobvious Relationship Analysis (NORA) -- 3.9 Text Mining -- 3.10 Future Trends -- 3.11 Bibliography -- Methods -- 4 Process Models for Data Mining and Analysis -- 4.1 CIA Intelligence Process -- 4.2 CRISP-DM -- 4.3 Actionable Mining and Predictive Analysis for Public

Safety and Security -- 4.4 Bibliography -- 5 Data -- 5.1 Getting Started -- 5.2 Types of Data -- 5.3 Data -- 5.4 Types of Data Resources -- 5.5 Data Challenges -- 5.6 How Do We Overcome These Potential Barriers? -- 5.7 Duplication -- 5.8 Merging Data Resources -- 5.9 Public Health Data -- 5.10 Weather and Crime Data -- 5.11 Bibliography -- 6 Operationally Relevant Preprocessing -- 6.1 Operationally Relevant Recoding -- 6.2 Trinity Sight -- 6.3 Duplication -- 6.4 Data Imputation -- 6.5 Telephone Data -- 6.6 Conference Call Example -- 6.7 Internet Data -- 6.8 Operationally Relevant Variable Selection -- 6.9 Bibliography -- 7 Predictive Analytics -- 7.1 How to Select a Modeling Algorithm, Part I -- 7.2 Generalizability versus Accuracy -- 7.3 Link Analysis.
7.4 Supervised versus Unsupervised Learning Techniques -- 7.5 Discriminant Analysis -- 7.6 Unsupervised Learning Algorithms -- 7.7 Neural Networks -- 7.8 Kohonan Network Models -- 7.9 How to Select a Modeling Algorithm, Part II -- 7.10 Combining Algorithms -- 7.11 Anomaly Detection -- 7.12 Internal Norms -- 7.13 Defining "Normal" -- 7.14 Deviations from Normal Patterns -- 7.15 Deviations from Normal Behavior -- 7.16 Warning! Screening versus Diagnostic -- 7.17 A Perfect World Scenario -- 7.18 Tools of the Trade -- 7.19 General Considerations and Some Expert Options -- 7.20 Variable Entry -- 7.21 Prior Probabilities -- 7.22 Costs -- 7.23 Bibliography -- 8 Public Safety-Specific Evaluation -- 8.1 Outcome Measures -- 8.2 Think Big -- 8.3 Training and Test Samples -- 8.4 Evaluating the Model -- 8.5 Updating or Refreshing the Model -- 8.6 Caveat Emptor -- 8.7 Bibliography -- 9 Operationally Actionable Output -- 9.1 Actionable Output -- Applications -- 10 Normal Crime -- 10.1 Knowing Normal -- 10.2 "Normal" Criminal Behavior -- 10.3 Get to Know "Normal" Crime Trends and Patterns -- 10.4 Staged Crime -- 10.5 Bibliography -- 11 Behavioral Analysis of Violent Crime -- 11.1 Case-Based Reasoning -- 11.2 Homicide -- 11.3 Strategic Characterization -- 11.4 Automated Motive Determination -- 11.5 Drug-Related Violence -- 11.6 Aggravated Assault -- 11.7 Sexual Assault -- 11.8 Victimology -- 11.9 Moving from Investigation to Prevention -- 11.10 Bibliography -- 12 Risk and Threat Assessment -- 12.1 Risk-Based Deployment -- 12.2 Experts versus Expert Systems -- 12.3 "Normal" Crime -- 12.4 Surveillance Detection -- 12.5 Strategic Characterization -- 12.6 Vulnerable Locations -- 12.7 Schools -- 12.8 Data -- 12.9 Accuracy versus Generalizability -- 12.10 "Cost" Analysis -- 12.11 Evaluation -- 12.12 Output -- 12.13 Novel Approaches to Risk and Threat Assessment.
12.14 Bibliography -- Case Examples -- 13 Deployment -- 13.1 Patrol Services -- 13.2 Structuring Patrol Deployment -- 13.3 Data -- 13.4 How To -- 13.5 Tactical Deployment -- 13.6 Risk-Based Deployment Overview -- 13.7 Operationally Actionable Output -- 13.8 Risk-Based Deployment Case Studies -- 13.9 Bibliography -- 14 Surveillance Detection -- 14.1 Surveillance Detection and Other Suspicious Situations -- 14.2 Natural Surveillance -- 14.3 Location, Location, Location -- 14.4 More Complex Surveillance Detection -- 14.5 Internet Surveillance Detection -- 14.6 How To -- 14.7 Summary -- 14.8 Bibliography -- Advanced Concepts and Future Trends -- 15 Advanced Topics -- 15.1 Intrusion Detection -- 15.2 Identify Theft -- 15.3 Syndromic Surveillance -- 15.4 Data Collection, Fusion and Preprocessing -- 15.5 Text Mining -- 15.6 Fraud Detection -- 15.7 Consensus Opinions -- 15.8 Expert Options -- 15.9 Bibliography -- 16 Future Trends -- 16.1 Text Mining -- 16.2 Fusion Centers -- 16.3 "Functional" Interoperability -- 16.4 "Virtual" Warehouses -- 16.5 Domain-Specific Tools -- 16.6 Closing Thoughts -- 16.7 Bibliography

-- Index.

Sommario/riassunto

It is now possible to predict the future when it comes to crime. In Data Mining and Predictive Analysis, Dr. Colleen McCue describes not only the possibilities for data mining to assist law enforcement professionals, but also provides real-world examples showing how data mining has identified crime trends, anticipated community hot-spots, and refined resource deployment decisions. In this book Dr. McCue describes her use of ""off the shelf"" software to graphically depict crime trends and to predict where future crimes are likely to occur. Armed with this data, law enforcement executi