

1. Record Nr.	UNINA9910810570403321
Autore	Wang Dong
Titolo	Social sensing : building reliable systems on unreliable data // Dong Wang, Tarek Abdelzaher, Lance Kaplan
Pubbl/distr/stampa	Amsterdam : , : Elsevier, , [2015] ©2015
ISBN	0-12-800867-9
Edizione	[First edition.]
Descrizione fisica	1 online resource (232 p.)
Disciplina	302.30285
Soggetti	Social media - Data processing Information technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	<p>""Front Cover""; ""Social Sensing: Building Reliable Systems on Unreliable Data""; ""Copyright""; ""Dedication""; ""Contents""; ""Acknowledgments""; ""Authors""; ""Dong Wang""; ""Tarek Abdelzaher""; ""Lance M. Kaplan""; ""Foreword""; ""Preface""; ""Chapter 1: A new information age""; ""1.1 Overview""; ""1.2 Challenges""; ""1.3 State of the Art""; ""1.3.1 Efforts on Discount Fusion""; ""1.3.2 Efforts on Trust and Reputation Systems""; ""1.3.3 Efforts on Fact-Finding""; ""1.4 Organization""; ""Chapter 2: Social Sensing Trends and Applications""; ""2.1 Information Sharing: The Paradigm Shift""</p> <p>""2.2 An Application Taxonomy""""2.3 Early Research""; ""2.4 The Present Time""; ""2.5 A Note on Privacy""; ""Chapter 3: Mathematical foundations of social sensing: An introductory tutorial""; ""3.1 A Multidisciplinary Background""; ""3.2 Basics of Generic Networks""; ""3.3 Basics of Bayesian Analysis""; ""3.4 Basics of Maximum Likelihood Estimation""; ""3.5 Basics of Expectation Maximization""; ""3.6 Basics of Confidence Intervals""; ""3.7 Putting It All Together""; ""Chapter 4: Fact-finding in information networks""; ""4.1 Facts, Fact-Finders, and the Existence of Ground Truth""</p> <p>""4.2 Overview of Fact-Finders in Information Networks""""4.3 A Bayesian Interpretation of Basic Fact-Finding""; ""4.3.1 Claim Credibility""; ""4.3.2 Source Credibility""; ""4.4 The Iterative Algorithm""; ""4.5 Examples and Results""; ""4.6 Discussion""; ""Appendix"";</p>

""Chapter 5: Social Sensing: A maximum likelihood estimation approach""; ""5.1 The Social Sensing Problem""; ""5.2 Expectation Maximization""; ""5.2.1 Background""; ""5.2.2 Mathematical Formulation""; ""5.2.3 Deriving the E-Step and M-Step""; ""5.3 The EM Fact-Finding Algorithm""; ""5.4 Examples and Results""
""5.4.1 A Simulation Study""""5.4.2 A Geotagging Case Study""; ""5.4.3 A Real World Application""; ""5.5 Discussion""; ""Chapter 6: Confidence bounds in social sensing""; ""6.1 The Reliability Assurance Problem""; ""6.2 Actual Cramer-Rao Lower Bound""; ""6.3 Asymptotic Cramer-Rao Lower Bound""; ""6.4 Confidence Interval Derivation""; ""6.5 Examples and Results""; ""6.5.1 Evaluation of Confidence Interval""; ""6.5.2 Evaluation of CRLB""; ""Scalability study""; ""Trustworthiness and assertiveness study""; ""Robustness study""
""6.5.3 Evaluation of Estimated False Positives/Negatives on Claim Classification""""Scalability study""; ""Trustworthiness and assertiveness study""; ""Robustness study""; ""6.5.4 AReal World Case Study""; ""6.6 Discussion""; ""Appendix""; ""Chapter 7: Resolving conflicting observations and non-binary claims""; ""7.1 Handling Conflicting Binary Observations""; ""7.1.1 Extended Model""; ""7.1.2 Re-Derive the E-Step and M-Step""; ""7.1.3 The Binary Conflict EM Algorithm""; ""7.2 Handling Non-Binary Claims""; ""7.2.1 Generalized E and M Steps for Non-Binary Measured Variables""
""7.2.2 The Generalized EM Algorithm for Non-Binary Measured Variables""

Sommario/riassunto

Increasingly, human beings are sensors engaging directly with the mobile Internet. Individuals can now share real-time experiences at an unprecedented scale. Social Sensing: Building Reliable Systems on Unreliable Data looks at recent advances in the emerging field of social sensing, emphasizing the key problem faced by application designers: how to extract reliable information from data collected from largely unknown and possibly unreliable sources. The book explains how a myriad of societal applications can be derived from this massive amount of data collected and shared by average individu
