

Contents

1	Introduction	1
1.1	Background	1
1.2	The Research Issues and Challenges	3
1.3	Overview of the Book	4
1.4	Literature and Research Review	6
1.4.1	Traditional Context-Aware Recommendation	6
1.4.2	Temporal Recommendation	7
1.4.3	Spatial Item Recommendation	8
1.4.4	Real-Time Recommendation	9
1.4.5	Online Recommendation Efficiency	10
	References	12
2	Temporal Context-Aware Recommendation	17
2.1	Introduction	17
2.2	User Rating Behavior Modeling	20
2.2.1	Notations and Definitions	20
2.2.2	Temporal Context-Aware Mixture Model	22
2.2.3	Model Inference	24
2.2.4	Discussion About TCAM	26
2.2.5	Item-Weighting for TCAM	27
2.3	Temporal Recommendation	29
2.4	Experiments	30
2.4.1	Datasets	30
2.4.2	Comparisons	31
2.4.3	Evaluation Methodology	32
2.4.4	Recommendation Effectiveness	34
2.4.5	Temporal Context Influence Study	35
2.4.6	User Profile Analysis	37
2.5	Summary	38
	References	38

3	Spatial Context-Aware Recommendation	41
3.1	Introduction	41
3.2	Location-Content-Aware Recommender System.	44
3.2.1	Preliminary.	44
3.2.2	Model Description.	45
3.2.3	Model Inference	49
3.2.4	Online Recommendation	52
3.3	Experiments	52
3.3.1	Datasets	53
3.3.2	Comparative Approaches	54
3.3.3	Evaluation Methods.	56
3.3.4	Recommendation Effectiveness	57
3.3.5	Local Preference Influence Study	59
3.3.6	Analysis of Latent Topic	61
3.4	Summary	62
	References	62
4	Location-Based and Real-Time Recommendation	65
4.1	Introduction	66
4.1.1	Joint Modeling of User Check-In Behaviors	67
4.1.2	Real-Time POI Recommendation	68
4.2	Joint Modeling of User Check-In Activities	69
4.2.1	Preliminary.	70
4.2.2	Model Structure	71
4.2.3	Generative Process	74
4.2.4	Model Inference	75
4.3	Online Learning for TRM.	77
4.3.1	Feasibility Analysis	77
4.3.2	Online Learning Algorithm.	79
4.4	POI Recommendation Using TRM	83
4.4.1	Fast Top- k Recommendation Framework	85
4.4.2	Addressing Cold-Start Problem	86
4.5	Experiments	86
4.5.1	Datasets	86
4.5.2	Comparative Approaches	88
4.5.3	Evaluation Methods.	89
4.5.4	Recommendation Effectiveness	90
4.5.5	Impact of Different Factors.	92
4.5.6	Test for Cold-Start Problem	94
4.5.7	Model Training Efficiency	95
4.6	Summary	96
	References	96

5 Fast Online Recommendation	99
5.1 Introduction	99
5.1.1 Parallelization	100
5.1.2 Nearest-Neighbor Search	100
5.2 Metric Tree.	102
5.2.1 Branch-and-Bound Algorithm	103
5.3 TA-Based Algorithm	105
5.3.1 Discussion	107
5.4 Attribute-Pruning Algorithm	108
5.5 Experiments	111
5.5.1 Experimental Results	111
5.6 Summary	113
References	114

Spatio-Temporal Recommendation in Social Media

Yin, H.; Cui, B.

2016, XIII, 114 p. 26 illus., 22 illus. in color., Softcover

ISBN: 978-981-10-0747-7