



Foundations & Trends Technology Series Titles published by Now Publishers (Accessible on IEEExplore)

1. (Hyper)-Graphs Inference through Convex Relaxations and Move Making Algorithms: Contributions and Applications in Artificial Vision
2. 10 Lenses to Design Sports-HCI
3. 3D Reconstruction from Multiple Images: Part 1: Principles
4. A Brief Introduction to Machine Learning for Engineers
5. A Clean Slate Approach to Secure Wireless Networking
6. A Comprehensive Review of Modern Object Segmentation Approaches
7. A Decade of Lattice Cryptography
8. A Design Space of Sports Interaction Technology
9. A Framework For Efficient Modular Heap Analysis
10. A Framework for Web Science
11. A Fresh Look at Generalized Sampling
12. A Pragmatic Introduction to Secure Multi-Party Computation
13. A Primer on Reproducing Kernel Hilbert Spaces
14. A Review of Ethical Issue Considerations in the Information Systems Research Literature
15. A Review of Personality in Human-Robot Interactions
16. A Review of Point Cloud Registration Algorithms for Mobile Robotics
17. A Roadmap for US Robotics – From Internet to Robotics 2020 Edition
18. A Signal Processing Perspective of Financial Engineering
19. A Stochastic Grammar of Images
20. A Survey of Augmented Reality
21. A Survey of Lower Bounds for Satisfiability and Related Problems
22. A Survey of Methods for Safe Human-Robot Interaction
23. A Survey of Nonverbal Signaling Methods for Non-Humanoid Robots
24. A Survey of Photometric Stereo Techniques
25. A Survey of Query Auto Completion in Information Retrieval
26. A Survey of Relaxations and Approximations of the Power Flow Equations
27. A Survey of Statistical Network Models
28. A Survey of Value Sensitive Design Methods
29. A Survey on Policy Search for Robotics
30. A Survey on the Integration of Machine Learning with Sampling-based Motion Planning
31. A Tutorial on Linear Function Approximators for Dynamic Programming and Reinforcement Learning
32. A Tutorial on Thompson Sampling
33. A Unifying Tutorial on Approximate Message Passing
34. Acceleration Methods
35. Access Control for Databases: Concepts and Systems
36. Accountability in Computing: Concepts and Mechanisms
37. Achieving Ecological Resilience through Regime Shift Management
38. Adaptation, Learning, and Optimization over Networks
39. Adaptive Internal Models in Neuroscience
40. Adaptive Query Processing
41. Addressing Process Variations At the Microarchitecture and System Level
42. Adoption of Robots for Disasters: Lessons from the Response to COVID-19
43. Advances and Open Problems in Federated Learning
44. Advances in Supply Chain Finance and FinTech Innovations

45. Adversarial Web Search
46. Age of Information: A New Concept, Metric, and Tool
47. Aggregated Search
48. AI and Business Models: The Good, The Bad and The Ugly
49. Algebraic Number Theory and Code Design for Rayleigh Fading Channels
50. Algorithmic and Analysis Techniques in Property Testing
51. Algorithmic Aspects of Parallel Data Processing
52. Algorithmic Results in List Decoding
53. Algorithms and Data Structures for External Memory
54. Algorithms for Verifying Deep Neural Networks
55. An Algebraic and Probabilistic Framework for Network Information Theory
56. An Algorithmic Perspective on Imitation Learning
57. An Approximation Approach to Network Information Theory
58. An Introduction to Conditional Random Fields
59. An Introduction to Deep Reinforcement Learning
60. An Introduction to Digital Speech Processing
61. An Introduction to Hybrid Human-Machine Information Systems
62. An Introduction to Matrix Concentration Inequalities
63. An Introduction to Neural Information Retrieval
64. An Introduction to Quantum Machine Learning for Engineers
65. An Introduction to Variational Autoencoders
66. An Introduction to Wishart Matrix Moments
67. Analysis and Control for Resilience of Discrete Event Systems: Fault Diagnosis, Opacity and Cyber Security
68. Analysis and Synthesis of Reset Control Systems
69. Application of Dual-process Theory to Information Systems: Current and Future Research Directions
70. Application of Hidden Markov Models in Speech Recognition
71. Applications of Topic Models
72. Applied Assertion-Based Verification: An Industry Perspective
73. Approximate String Processing
74. Arabic Information Retrieval
75. Architecture and Economics for Grid Operation 3.0
76. Architecture of a Database System
77. Arithmetic Circuits: A Survey of Recent Results and Open Questions
78. Assured Autonomy Survey
79. Asymptotic Estimates in Information Theory with Non-Vanishing Error Probabilities
80. Asymptotic Frame Theory for Analog Coding
81. Atomic Decomposition via Polar Alignment: The Geometry of Structured Optimization
82. Auditing Algorithms: Understanding Algorithmic Systems from the Outside In
83. Authorship Attribution
84. Automatic Summarization
85. Average-Case Complexity
86. Backward Simulation Methods for Monte Carlo Statistical Inference
87. Bandit Algorithms in Information Retrieval
88. Bayesian Mechanism Design
89. Bayesian Reinforcement Learning: A Survey
90. Behavioral Operations Management
91. Behavioral Types in Programming Languages
92. Big Graph Analytics Platforms
93. Bilateral Filtering: Theory and Applications
94. Bilevel Methods for Image Reconstruction
95. Biomedical Image Reconstruction: From the Foundations to Deep Neural Networks
96. Biometric Security from an Information-Theoretical Perspective

97. Bit-Interleaved Coded Modulation
98. Bivariate Markov Processes and Their Estimation
99. Block Toeplitz Matrices: Asymptotic results and applications
100. Block-Based Compressed Sensing of Images and Video
101. Building Reliable Storage Clouds: Models, Fundamental Tradeoffs, and Solutions
102. Cache Optimization Models and Algorithms
103. Caching and Materialization for Web Databases
104. Camera Models and Fundamental Concepts Used in Geometric Computer Vision
105. Canine-Centered Computing
106. Channel Coding in the Presence of Side Information
107. Channel Coding Methods for Non-Volatile Memories
108. Choice Architecture for Human-Computer Interaction
109. Chordal Graphs and Semidefinite Optimization
110. Cloud Computing Security: Foundations and Research Directions
111. Cloud Data Services: Workloads, Architectures and Multi-Tenancy
112. Clustering Stability: An Overview
113. Coded Computing: Mitigating Fundamental Bottlenecks in Large-scale Distributed Computing and Machine Learning
114. Codes for Distributed Storage
115. Codes in the Sum-Rank Metric: Fundamentals and Applications
116. Coding for Interactive Communication: A Survey
117. Coding Techniques for Repairability in Networked Distributed Storage Systems
118. Collaboration Research for Crisis Management Teams
119. Collaborative Filtering Recommender Systems
120. Collective Attention on the Web
121. Combinatorial Designs for Authentication and Secrecy Codes
122. Combinatorial Optimization of Alternating Current Electric Power Systems
123. Common Information, Noise Stability, and Their Extensions
124. Communicating Personal Genomic Information to Non-Experts: A New Frontier for Human-Computer Interaction
125. Communication Complexity (for Algorithm Designers)
126. Community Detection and Stochastic Block Models
127. Competition and Cooperative Bargaining Models in Supply Chains
128. Complexity Lower Bounds using Linear Algebra
129. Complexity of Linear Boolean Operators
130. Complexity Theory, Game Theory, and Economics: The Barbados Lectures
131. Compressed Sensing with Applications in Wireless Networks
132. Computational Advertising: Techniques for Targeting Relevant Ads
133. Computational Human-Robot Interaction
134. Computational Optimal Transport: With Applications to Data Science
135. Computational Studies of Human Motion
136. Computational Support for Sketching in Design
137. Computational Symmetry in Computer Vision and Computer Graphics
138. Computational Visual Attention Models
139. Computationally Enhanced Toolkits for Children: Historical Review and a Framework for Future Design
140. Computer Vision for Autonomous Vehicles: Problems, Datasets and State of the Art
141. Computer-Aided Design and Optimization of Hybrid Energy Storage Systems
142. Computer-Assisted Query Formulation
143. Computing and Building around Tie Strength in Social Media
144. Concentration of Measure Inequalities in Information Theory, Communications, and Coding
145. Concentration of Measure Inequalities in Information Theory, Communications, and Coding: Second Edition

146. Concentration of Measure Inequalities in Information Theory, Communications, and Coding: Third Edition
 147. Concept-Based Video Retrieval
 148. Contextual Integrity through the Lens of Computer Science
 149. Contextual Search: A Computational Framework
 150. Contracts for System Design
 151. Control and State Estimation for Max-Plus Linear Systems
 152. Controlled Markov Chains, Graphs & Hamiltonicity
 153. Convergence Rate of Distributed Averaging Dynamics and Optimization in Networks
 154. Convex Optimization: Algorithms and Complexity
 155. Cooperative Communications
 156. Cooperative Wireless Cellular Systems: An Information-Theoretic View
 157. Coping with Errors in Organizations: Challenges, Opportunities, and Frontiers for Operations Management Research
 158. Credibility in Information Retrieval
 159. Crowdsourced Data Management: Industry and Academic Perspectives
 160. Crowdsourcing Accessibility: Human-Powered Access Technologies
 161. Crowdsourcing in Computer Vision
 162. Cultural Research in the Production and Operations Management Field
 163. Cyber-Maritime Cycle: Autonomy of Marine Robots for Ocean Sensing
 164. Cyber-Physical System Security of Distribution Systems
 165. Cybersecurity in Robotics: Challenges, Quantitative Modeling, and Practice
 166. Cyclic Division Algebras: A Tool for Space-Time Coding
 167. Data Analytics on Graphs Part I: Graphs and Spectra on Graphs
 168. Data Analytics on Graphs Part II: Signals on Graphs
 169. Data Analytics on Graphs Part III: Machine Learning on Graphs, from Graph Topology to Applications
 170. Data Infrastructure for Medical Research
 171. Data Provenance: Origins, Applications, Algorithms, and Models
 172. Data Streams: Algorithms and Applications
 173. Database Systems on GPUs
 174. Datacenter Power Management in Smart Grids
 175. Data-Driven Multi-Microphone Speaker Localization on Manifolds
 176. Datalog and Recursive Query Processing
 177. Decision Forests: A Unified Framework for Classification, Regression, Density Estimation, Manifold Learning and Semi-Supervised Learning
 178. Deep Learning for Dialogue Systems: Chit-Chat and Beyond
 179. Deep Learning for Image/Video Restoration and Super-resolution
 180. Deep Learning for Matching in Search and Recommendation
 181. Deep Learning for Multimedia Forensics
 182. Deep Learning in Object Recognition, Detection, and Segmentation
 183. Deep Learning: Methods and Applications
 184. Design Automation of Real-Life Asynchronous Devices and Systems
 185. Design Framework for Interactive Highlighting Techniques
 186. Design of Dynamic Legged Robots
 187. Design, Automation, and Test for Low-Power and Reliable Flexible Electronics
 188. Designing and Controlling the Outsourced Supply Chain
 189. Designing and Evaluating Mobile Interaction: Challenges and Trends
 190. Designing Effective Supply Chains in Strategic Alignment with Demand Characteristics and Market Requirements
 191. Designing for Healthy Lifestyles: Design Considerations for Mobile Technologies to Encourage Consumer Health and Wellness
 192. Designs on Transcendence: Sketches of a TX machine
 193. Determinantal Point Processes for Machine Learning
 194. Differential Privacy for Databases

195. Digital Modernity
 196. Dimension Reduction: A Guided Tour
 197. Discrete Circuit Optimization: Library Based Gate Sizing and Threshold Voltage Assignment
 198. Discrete Graphical Models: An Optimization Perspective
 199. Display Advertising with Real-Time Bidding (RTB) and Behavioural Targeting
 200. Distributed Averaging and Balancing in Network Systems
 201. Distributed Coding in A Multiple Access Environment
 202. Distributed Learning Systems with First-Order Methods
 203. Distributed Optimization and Statistical Learning via the Alternating Direction Method of Multipliers
 204. Distributed Optimization for Smart Cyber-Physical Networks
 205. Distribution grids of the future: Planning for flexibility to operate under growing uncertainty
 206. Distributionally Robust Learning
 207. Divided Differences, Falling Factorials, and Discrete Splines: Another Look at Trend Filtering and Related Problems
 208. Domain Adaptation for Visual Recognition
 209. Duality of the Max-Plus and Min-Plus Network Calculus
 210. Dynamic Network Energy Management via Proximal Message Passing
 211. Dynamical Variational Autoencoders: A Comprehensive Review
 212. E-business Value Creation from a Resource-Based Perspective: A Review of the Last Decade of Empirical Research
 213. Economic Model Predictive Control: Handling Valve Actuator Dynamics and Process Equipment Considerations
 214. Economic Modeling in Networking: A Primer
 215. Economic Nonlinear Model Predictive Control
 216. Efficiency of Wireless Networks: Approximation Algorithms for the Physical Interference Model
 217. Efficient Query Processing for Scalable Web Search
 218. Electronic Design Automation with Graphic Processors: A Survey
 219. Elements of Sequential Monte Carlo
 220. Email Spam Filtering: A Systematic Review
 221. Embodiment in Socially Interactive Robots
 222. Emerging Input Technologies for Always-Available Mobile Interaction
 223. Emerging Technology & Advances in Supply Chain Finance & Risk Management
 224. Emerging Trends of Biomedical Circuits and Systems
 225. Empirical Research in Information Systems: 2001-2015
 226. End-User Privacy in Human-Computer Interaction
 227. Energy Efficiency in Wireless Networks via Fractional Programming Theory
 228. Energy Harvesting and Power Delivery for Implantable Medical Devices
 229. Energy in Robotics
 230. Enterprise Personal Analytics: The Next Frontier in Individual Information Systems Research
 231. Error-Efficient Computing Systems
 232. Evasiveness of Graph Properties and Topological Fixed-Point Theorems
 233. Exertion Games
 234. Experiential Knowledge Mining
 235. Expertise Retrieval
 236. Explainable Recommendation: A Survey and New Perspectives
 237. Explaining the Success of Nearest Neighbor Methods in Prediction
 238. Explicit-Duration Markov Switching Models
 239. Expressing Information Flow Properties
 240. Extracting, Mining and Predicting Users' Interests from Social Media
 241. Factor Graphs for Robot Perception

- 242. Fairness in Information Access Systems
- 243. Fast Uncovering of Graph Communities on a Chip: Toward Scalable Community Detection on Multicore and Manycore Platforms
- 244. Faster Algorithms via Approximation Theory
- 245. Federated Search
- 246. Finite-Time Stability Tools for Control and Estimation
- 247. Formal Models and Techniques for Analyzing Security Protocols: A Tutorial
- 248. Foundational Issues in Touch-Surface Stroke Gesture Design: An Integrative Review
- 249. Foundations of Cryptography: A Primer
- 250. Foundations of User-Centric Cell-Free Massive MIMO
- 251. FPGA Architecture: Survey and Challenges
- 252. FPGA Design Automation: A Survey
- 253. FPGA-Accelerated Analytics: From Single Nodes to Clusters
- 254. From Bandits to Monte-Carlo Tree Search: The Optimistic Principle Applied to Optimization and Planning
- 255. From Keyword Search to Exploration: Designing Future Search Interfaces for the Web
- 256. From Project Management to Team Integration: Key Issues in the Management of the Human Resource in Projects
- 257. Full-Reference Image Quality Metrics
- 258. Fundamental Performance Limits in Cross-layer Wireless Optimization: Throughput, Delay, and Energy
- 259. Fundamentals of Diffusion-Based Molecular Communication in Nanonetworks
- 260. Fundamentals of Electromagnetic Nanonetworks in the Terahertz Band
- 261. Fundamentals of Index Coding
- 262. Game Theory: Models, Numerical Methods and Applications
- 263. Gender-Inclusive HCI Research and Design: A Conceptual Review
- 264. Generalized Coordination of Multi-robot Systems
- 265. Generalized Low Rank Models
- 266. Geodesic Methods in Computer Vision and Computer Graphics
- 267. Geographic Information Retrieval: Progress and Challenges in Spatial Search of Text
- 268. Geometric Programming for Communication Systems
- 269. Gossip Algorithms
- 270. Graph Kernels: State-of-the-Art and Future Challenges
- 271. Graphical Models, Exponential Families, and Variational Inference
- 272. Group Testing: An Information Theory Perspective
- 273. Hardware Platform Security for Mobile Devices
- 274. Hashing, Load Balancing and Multiple Choice
- 275. HCI's Making Agendas
- 276. Health Web Science
- 277. High-Confidence Medical Device Software Development
- 278. Higher-order Fourier Analysis and Applications
- 279. Human-Computer Integration: Towards Integrating the Human Body with the Computational Machine
- 280. Human-Computer Interaction and Global Development
- 281. Human-Computer Interaction and International Public Policymaking: A Framework for Understanding and Taking Future Actions
- 282. Human-Computer Interaction in Industry: A Systematic Review on the Applicability and Value-added of Operator Assistance Systems
- 283. Human-Food Interaction
- 284. Humanitarian Logistics: A New Field of Research and Action
- 285. Human-Machine Interaction for Vehicles: Review and Outlook
- 286. Human-Robot Interaction: A Survey
- 287. Hybrid Dynamical Systems: An Introduction to Control and Verification
- 288. Image Alignment and Stitching: A Tutorial

289. Image and Video Matting: A Survey
290. Image Wavelet Coding Systems: Part II of Set Partition Coding and Image Wavelet Coding Systems
291. Image-Based Rendering
292. Improving HCI with Brain Input: Review, Trends, and Outlook
293. Incidence Theorems and Their Applications
294. Inclusive Security: Digital Security Meets Web Science
295. Information Combining
296. Information Extraction
297. Information Relaxations and Duality in Stochastic Dynamic Programs: A Review and Tutorial
298. Information Retrieval for E-Discovery
299. Information Retrieval on the Blogosphere
300. Information Retrieval with Verbose Queries
301. Information Retrieval: The Early Years
302. Information Systems Success Measurement
303. Information Technology Alignment and Innovation: 30 Years of Intersecting Research
304. Information Technology and Entrepreneurship: Factors that Shape Investment Support for Innovation
305. Information Technology for Active Ageing: A Review of Theory and Practice
306. Information Theoretic Security
307. Information Theory and Statistics: A Tutorial
308. Information-Theoretic Foundations of DNA Data Storage
309. Information-Theoretic Foundations of Mismatched Decoding
310. Innovative, Creative and Sustainable Decision-Making in Changing Contexts
311. Inside the Organizational Learning Curve: Understanding the Organizational Learning Process
312. Integrated Modeling for Location Analysis
313. Integrated Risk Management in Supply Chains
314. Interaction Design and Children
315. Interactive Imitation Learning in Robotics: A Survey
316. Interactive Information Visualization to Explore and Query Electronic Health Records
317. Interactive Sensing and Decision Making in Social Networks
318. Interference Alignment: A New Look at Signal Dimensions in a Communication Network
319. Interference in Large Wireless Networks
320. Introduction to Frames
321. Introduction to Multi-Armed Bandits
322. Introduction to Neural Network Verification
323. Introduction to Online Convex Optimization
324. Inventory Management: Modeling Real-life Supply Chains and Empirical Validity
325. IT Project Management: Lessons Learned from Project Retrospectives 1999–2020
326. IT Use and Identity: A Review and a Research Agenda
327. Kernel Mean Embedding of Distributions: A Review and Beyond
328. Kernel Methods in Computer Vision
329. Kernels for Vector-Valued Functions: A Review
330. Key Communication Techniques for Underground Sensor Networks
331. Knowledge Graphs: An Information Retrieval Perspective
332. Knowledge Paths in Design Science Research
333. Languages and Tools for Hybrid Systems Design
334. Laser and Radar Based Robotic Perception
335. Last-mile Supply Network Distribution in Omni-Channel Retailing: A Configuration-Based Typology

- 336.Lattice-Reduction-Aided and Integer-Forcing Equalization: Structures, Criteria, Factorization, and Coding
 337.Learning Deep Architectures for AI
 338.Learning in Repeated Auctions
 339.Learning Representation and Control in Markov Decision Processes: New Frontiers
 340.Learning to Rank for Information Retrieval
 341.Learning with Submodular Functions: A Convex Optimization Perspective
 342.Learning-Based Control: A Tutorial and Some Recent Results
 343.LifeLogging: Personal Big Data
 344.Line Drawings from 3D Models: A Tutorial
 345.LLC Resonant Converters: An Overview of Modeling, Control and Design Methods and Challenges
 346.Local Invariant Feature Detectors: A Survey
 347.Locally Decodable Codes
 348.Logical Control of Complex Resource Allocation Systems
 349.Long Range Dependence
 350.Longitudinal Author Cocitation Mapping: The Changing Structure of Decision Support Systems Research (1969-2012)
 351.Low-Dimensional-Model-based Electromagnetic Imaging: A Survey
 352.Lower Bounds in Communication Complexity
 353.Low-Rank Semidefinite Programming: Theory and Applications
 354. $Lx = b$
 355.Machine Knowledge Subtitle: Creation and Curation of Comprehensive Knowledge Bases
 356.Machine Learning for Automated Theorem Proving: Learning to Solve SAT and QSAT
 357.Main Memory Database Systems
 358.Majorization and Matrix Monotone Functions in Wireless Communications
 359.Management Accounting Information Properties and Operations Management
 360.Management Systems Standards: Diffusion, Impact and Governance of ISO 9000, ISO 14000, and Other Management Standards
 361.Managing Supply Chain Disruptions
 362.Manufacturability Aware Routing in Nanometer VLSI
 363.Markov Random Fields in Image Segmentation
 364.Massive MIMO Networks: Spectral, Energy, and Hardware Efficiency
 365.Massive MIMO Networks: Spectral, Energy, and Hardware Efficiency
 366.Massively Parallel Databases and MapReduce Systems
 367.Matching Supply and Demand for Hospital Services
 368.Materialized Views
 369.Mathematical Aspects of Mixing Times in Markov Chains
 370.Mathematical Programming Approaches for Multi-Vehicle Motion Planning: Linear, Nonlinear, and Mixed Integer Programming
 371.Mesh Parameterization Methods and Their Applications
 372.Methods and Techniques for Involving Children in the Design of New Technology for Children
 373.Methods for Evaluating Interactive Information Retrieval Systems with Users
 374.Methods for Location Privacy: A comparative overview
 375.Metric Learning: A Survey
 376.Micro-Scale Mobile Robotics
 377.Millimeter Wave Vehicular Communications: A Survey
 378.MIMO Transceiver Design via Majorization Theory
 379.Minds Online: The Interface between Web Science, Cognitive Science and the Philosophy of Mind
 380.Minimum Probability of Error Image Retrieval
 381.Minimum-Distortion Embedding

- 382.Mining Query Logs: Turning Search Usage Data into Knowledge
 383.Modeling and Optimization of Latency in Erasure-coded Storage Systems
 384.Modeling and Optimization of the Smart Grid Ecosystem
 385.Modeling and Simulation of Skeletal Muscle For Computer Graphics: A Survey
 386.Modeling and Verifying Security Protocols with the Applied Pi Calculus and ProVerif
 387.Modeling, Control, State Estimation and Path Planning Methods for Autonomous
 Multirotor Aerial Robots
 388.Modern B-Tree Techniques
 389.Modern Datalog Engines
 390.Modern Random Access Protocols
 391.Modes of Uncertainty in HCI
 392.Monocular Model-Based 3D Tracking of Rigid Objects: A Survey
 393.Monotonic Optimization in Communication and Networking Systems
 394.Monotonicity in Markov Reward and Decision Chains: Theory and Applications
 395.Multidimensional Filter Banks and Multiscale Geometric Representations
 396.Multihop Wireless Networks: A Unified Approach to Relaying and Interference
 Management
 397.Multi-Period Trading via Convex Optimization
 398.Multiple Reference Motion Compensation: A Tutorial Introduction and Survey
 399.Multiterminal Secrecy by Public Discussion
 400.Multi-Valued Reasoning about Reactive Systems
 401.Multi-View Stereo: A Tutorial
 402.Multi-way Communications: An Information Theoretic Perspective
 403.Music Information Retrieval: Recent Developments and Applications
 404.Music Retrieval: A Tutorial and Review
 405.Natural Language Interfaces to Data
 406.Natural Language Processing as a Foundation of the Semantic Web
 407.Network and Protocol Architectures for Future Satellite Systems
 408.Network Coding Applications
 409.Network Coding Fundamentals
 410.Network Coding Theory
 411.Network Optimization and Control
 412.Network-Based Analysis of Rotor Angle Stability of Power Systems
 413.Neural Approaches to Conversational AI: Question Answering, Task-oriented
 Dialogues and Social Chatbots
 414.Neurosymbolic Programming
 415.Nominal Game Semantics
 416.Non-Boolean Computing with Spintronic Devices
 417.Non-convex Optimization for Machine Learning
 418.Nonlinear Model Reduction by Moment Matching
 419.Numerical Simulation and Modelling of Electronic and Biochemical Systems
 420.Object Categorization
 421.Observability of Hybrid Dynamical Systems
 422.Observability Properties and Deterministic Algorithms in Visual-Inertial Structure
 from Motion
 423.Of Brains and Computers
 424.On Doubly-Efficient Interactive Proof Systems
 425.On Replenishment Rules, Forecasting and the Bullwhip Effect in Supply Chains
 426.On the Concentration Properties of Interacting Particle Processes
 427.On the Control of Multi-Agent Systems: A Survey
 428.On the Power of Small-Depth Computation
 429.On the Sensitivity of the Critical Transmission Range: Lessons from the Lonely
 Dimension
 430.On-Chip Dynamic Resource Management
 431.Online Component Analysis, Architectures and Applications

- 432. Online Evaluation for Information Retrieval
- 433. Online Learning and Online Convex Optimization
- 434. Online Learning Methods for Networking
- 435. Online Matching and Ad Allocation
- 436. Open Source Software: A Survey from 10,000 Feet
- 437. Open-Domain Question Answering
- 438. Operating Characteristics for Classical and Quantum Binary Hypothesis Testing
- 439. Operating Regimes of Large Wireless Networks
- 440. Operations in Financial Services: Processes, Technologies, and Risks
- 441. Operator Splitting Methods in Control
- 442. Opinion Mining and Sentiment Analysis
- 443. Opportunistic Routing in Wireless Networks
- 444. Optimal Resource Allocation in Coordinated Multi-Cell Systems
- 445. Optimization Methods for Financial Index Tracking: From Theory to Practice
- 446. Optimization with Sparsity-Inducing Penalties
- 447. Parallel Circuit Simulation: A Historical Perspective and Recent Developments
- 448. Partial Derivatives in Arithmetic Complexity and Beyond
- 449. Particle Filters for Robot Navigation
- 450. Patent Retrieval
- 451. Pathwise Independence and Derandomization
- 452. Patient-Generated Health Data: Dimensions, Challenges, and Open Questions
- 453. Pattern Matching in Compressed Texts and Images
- 454. Patterns and Themes in Designing with Children
- 455. Patterns of Scalable Bayesian Inference
- 456. Performance Analysis of Linear Codes under Maximum-Likelihood Decoding: A Tutorial
- 457. Performance Bounds and Suboptimal Policies for Multi-Period Investment
- 458. Performance Improvement in Health Care Organizations
- 459. Personal Fabrication
- 460. Pervasive Computing for Hospital, Chronic, and Preventive Care
- 461. Pointer Analysis
- 462. Polarization and Polar Codes
- 463. Polynomial Methods in Statistical Inference: Theory and Practice
- 464. Pondering the Fault Lines of Anywhere Working (Telework, Telecommuting): A Literature Review
- 465. Port Inter-Organizational Information Systems: Capabilities to Service Global Supply Chains
- 466. Port-Hamiltonian Systems Theory: An Introductory Overview
- 467. Positive Markov Jump Linear Systems
- 468. Post-WIMP Interaction for Information Visualization
- 469. Power Control in Wireless Cellular Networks
- 470. Power Modeling and Characterization of Computing Devices: A Survey
- 471. Precomputation-Based Rendering
- 472. Pre-training Methods in Information Retrieval
- 473. Principles and Implementation Techniques of Software-Based Fault Isolation
- 474. Principles of Appearance Acquisition and Representation
- 475. Principles of Eventual Consistency
- 476. Privacy-Preserving Data Publishing
- 477. Probabilistic Proof Systems: A Primer
- 478. Probabilistic Trace and Testing Semantics: The Importance of Being Coherent
- 479. Process Theory: Background, Opportunity, and Challenges
- 480. Program Synthesis
- 481. Programming with "Big Code"
- 482. Progress of Concurrent Objects
- 483. Proofs, Arguments, and Zero-Knowledge

484. Property Testing: A Learning Theory Perspective
 485. Provenance in Databases: Why, How, and Where
 486. Proximal Algorithms
 487. Pseudorandomness
 488. Psychology-informed Recommender Systems
 489. Publishing and Consuming 3D Content on the Web: A Survey
 490. QED at Large: A Survey of Engineering of Formally Verified Software
 491. QoS-Based Resource Allocation and Transceiver Optimization
 492. Qualitative and Critical Research in Information Systems and Human-Computer Interaction: Divergent and Convergent Paths
 493. Quantified Derandomization: How to Find Water in the Ocean
 494. Quantity Discounts: An Overview and Practical Guide for Buyers and Sellers
 495. Quantum Hamiltonian Complexity
 496. Quantum Proofs
 497. Query Processing on Probabilistic Data: A Survey
 498. Radiation-induced Soft Error: A Chip-level Modeling
 499. Random Matrix Theory and Wireless Communications
 500. Randomized Algorithms for Matrices and Data
 501. Random-Set Theory and Wireless Communications
 502. Rank-Metric Codes and Their Applications
 503. Raptor Codes
 504. Rate Distortion Bounds for Voice and Video
 505. Readability Research: An Interdisciplinary Approach
 506. Real Options and Merchant Operations of Energy and Other Commodities
 507. Recent Advances in Clock Synchronization for Packet-Switched Networks
 508. Reconciling Abstraction with High Performance: A MetaOCaml approach
 509. Redundancy of Lossless Data Compression for Known Sources by Analytic Methods
 510. Refinement Types: A Tutorial
 511. Regret Analysis of Stochastic and Nonstochastic Multi-armed Bandit Problems
 512. Rehabilitation Robotics
 513. Reliability Criteria in Information Theory and in Statistical Hypothesis Testing
 514. Reliability Standards for the Operation and Planning of Future Electricity Networks
 515. Research Fiction and Thought Experiments in Design
 516. Resilient Control in Cyber-Physical Systems: Countering Uncertainty, Constraints, and Adversarial Behavior
 517. Resource Allocation and Cross Layer Control in Wireless Networks
 518. Resource-aware Automotive Control Systems Design: A Cyber-Physical Systems Approach
 519. Rethinking Biased Estimation: Improving Maximum Likelihood and the Cramer-Rao Bound
 520. Revisiting the Frontiers of Analog and Mixed-Signal Integrated Circuits Architectures and Techniques towards the future Internet of Everything (IoE) Applications
 521. RFID and the Internet of Things: Technology, Applications, and Security Challenges
 522. Rigorous System Design
 523. Risk-Sensitive Reinforcement Learning via Policy Gradient Search
 524. Rivers and Electric Networks: Crossing Disciplines in Modeling and Simulation
 525. Robotics in the AI era: A vision for a Hellenic Robotics Initiative
 526. Robust Estimation and Applications in Robotics
 527. Robust Project Scheduling
 528. Scalable Algorithms for Data and Network Analysis
 529. Scaling Laws for Ad-Hoc Wireless Networks: An Information Theoretic Approach
 530. Scheduling in Wireless Networks
 531. Search and Discovery in Personal Email Collections
 532. Search Interface Design and Evaluation

- 533. Search Result Diversification
- 534. Searching the Enterprise
- 535. Secure Distributed Data Aggregation
- 536. Secure Processors Part I: Background, Taxonomy for Secure Enclaves and Intel SGX Architecture
- 537. Secure Processors Part II: Intel SGX Security Analysis and MIT Sanctum Architecture
- 538. Self-Powered Wearable IoT Devices for Health and Activity Monitoring
- 539. Semantic Image Segmentation: Two Decades of Research
- 540. Semantic Matching in Search
- 541. Semantic Search on Text and Knowledge Bases
- 542. Semantics for Robotic Mapping, Perception and Interaction: A Survey
- 543. Semialgebraic Proofs and Efficient Algorithm Design
- 544. Sensing and Filtering: A Fresh Perspective Based on Preimages and Information Spaces
- 545. Sensor Fault Diagnosis
- 546. Sequential Decision Analytics and Modeling: Modeling with Python
- 547. Service Industrialization, Employment and Wages in the US Information Economy
- 548. Set Partition Coding: Part I of Set Partition Coding and Image Wavelet Coding Systems
- 549. Shape Analysis
- 550. Sketching as a Tool for Numerical Linear Algebra
- 551. Smart Connected Buildings Design Automation: Foundations and Trends
- 552. Smart Healthcare
- 553. Social Interactions for Autonomous Driving: A Review and Perspectives
- 554. Soft-Material Robotics
- 555. Solving Free-boundary Problems with Applications in Finance
- 556. Some Whys and Hows of Experiments in Human-Computer Interaction
- 557. Source Coding: Part I of Fundamentals of Source and Video Coding
- 558. Sparse Modeling for Image and Vision Processing
- 559. Sparse Regression Codes
- 560. Sparse Sensing for Statistical Inference
- 561. Spectral Algorithms
- 562. Spectral Learning on Matrices and Tensors
- 563. Spectral Methods for Data Science: A Statistical Perspective
- 564. Speech Analytics for Actionable Insights: Current Status, Recommendation, and Guidance
- 565. Spoken Content Retrieval: A Survey of Techniques and Technologies
- 566. Stable Throughput Regions in Wireless Networks
- 567. Static Analysis and Verification of Aerospace Software by Abstract Interpretation
- 568. Statistical Language Models for Information Retrieval: A Critical Review
- 569. Statistical Methods and Models for Video-based Tracking, Modeling, and Recognition
- 570. Statistical Performance Modeling and Optimization
- 571. Statistical Physics and Information Theory
- 572. Stochastic Computing
- 573. Stochastic Geometry and Wireless Networks: Volume I Theory
- 574. Stochastic Geometry and Wireless Networks: Volume II Applications
- 575. Strategic and Tactical Aspects of Closed-Loop Supply Chains
- 576. Structure of Global Supply Chains: The Design and Location of Sourcing, production and Distribution Facility Networks for Global Markets
- 577. Structured Conflict Approaches used in Strategic Decision Making: from Mason's Initial Study to Virtual Teams
- 578. Structured Learning and Prediction in Computer Vision
- 579. Structured Robust Covariance Estimation
- 580. Supply Chain Finance

- 581. Supporting and Exploiting Spatial Memory in User Interfaces
- 582. Sustainable Transportation with Electric Vehicles
- 583. Switched Positive Linear Systems
- 584. Synchronization and Localization in Wireless Networks
- 585. Synchronous Reinforcement Learning-Based Control for Cognitive Autonomy
- 586. Synopses for Massive Data: Samples, Histograms, Wavelets, Sketches
- 587. System-in-Package: Electrical and Layout Perspectives
- 588. Tactile Guidance for Policy Adaptation
- 589. Tangible User Interfaces: Past, Present and Future Directions
- 590. Temperature-Aware Design and Management for 3D Multi-Core Architectures
- 591. Temporal Information Retrieval
- 592. Tensor Networks for Dimensionality Reduction and Large-scale Optimization: Part 2
Applications and Future Perspectives
- 593. Tensor Regression
- 594. Test Collection Based Evaluation of Information Retrieval Systems
- 595. The Algorithmic Foundations of Differential Privacy
- 596. The Appearance of Human Skin: A Survey
- 597. The Business of Electric Vehicles: A Platform Perspective
- 598. The Chip Is the Network: Towards a Science of Network-on-Chip Design
- 599. The Computer Self-Efficacy Construct: A History of Application in Information
Systems Research
- 600. The Design and Implementation of Modern Column-Oriented Database Systems
- 601. The Design of Competitive Online Algorithms via a Primal-Dual Approach
- 602. The Economic Foundations of Supply Chain Contracting
- 603. The Era of Big Spatial Data: A Survey
- 604. The Evolution of TV Systems, Content, and Users Towards Interactivity
- 605. The Foundations for Provenance on the Web
- 606. The Foundations of a Trustworthy Web
- 607. The Holomorphic Embedding Load-Flow Method: Foundations and Implementations
- 608. The Interface of Finance, Operations, and Risk Management
- 609. The Interplay Between Information and Estimation Measures
- 610. The Many Faces of Degeneracy in Conic Optimization
- 611. The Path to Path-Traced Movies
- 612. The Predictive Technology Model in the Late Silicon Era and Beyond
- 613. The Probabilistic Relevance Framework
- 614. The Psychophysiology Primer: A Guide to Methods and a Broad Review with a Focus
on Human-Computer Interaction
- 615. The Role of Power Electronics in Modern Energy System Integration
- 616. The State of Industrial Robotics: Emerging Technologies, Challenges, and Key
Research Directions
- 617. The Trustworthy and Trusted Web
- 618. The U.S. Information Economy: Value, Employment, Industry Structure, and Trade
- 619. The Web Economy: Goods, Users, Models, and Policies
- 620. Theoretical Foundations of Adversarial Binary Detection
- 621. Theory and Use of the EM Algorithm
- 622. Theory of Disagreement-Based Active Learning
- 623. Thermally-Aware Design
- 624. Thought-leadership in Supply Chain Finance and Risk Management
- 625. Three-dimensional Integrated Circuits: Design, EDA, and Architecture
- 626. Time-Predictable Embedded Software on Multi-Core Platforms: Analysis and
Optimization
- 627. Toeplitz and Circulant Matrices: A Review
- 628. Topics and Techniques in Distribution Testing
- 629. Topics in Multi-User Information Theory

- 630.Toward a Unified Modeling and Control for Sustainable and Resilient Electric Energy Systems
631.Tracking on the Web, Mobile and the Internet of Things
632.Transmission and Reception with Multiple Antennas: Theoretical Foundations
633.Transmission Capacity of Wireless Networks
634.Trends in Cleaning Relational Data: Consistency and Deduplication
635.Trends in Explanations: Understanding and Debugging Data-driven Systems
636.Trust on the World Wide Web: A Survey
637.Tutorial on Static Inference of Numeric Invariants by Abstract Interpretation
638.Two-User Gaussian Interference Channels: An Information Theoretic Point of View
639.Ubiquitous Computing for Capture and Access
640.Understanding Web Credibility: A Synthesis of the Research Literature
641.Unit Commitment in Electric Energy Systems
642.Universal Estimation of Information Measures for Analog Sources
643.Universal Usability: Past, Present, and Future
644.User Interface Design for Low-literate and Novice Users: Past, Present and Future
645.Using Inertial Sensors for Position and Orientation Estimation
646.Using Laboratory Experiments to Build Better Operations Management Models
647.Utilization Control and Optimization of Real-Time Embedded Systems
648.Values and Ethics in Human-Computer Interaction
649.Video Coding: Part II of Fundamentals of Source and Video Coding
650.Video Summarization Overview
651.Vision for Robotics
652.Vision-Language Pre-Training: Basics, Recent Advances, and Future Trends
653.Web Crawling
654.Web Forum Retrieval and Text Analytics: A Survey
655.Web History Tools and Revisitation Support: A Survey of Existing Approaches and Directions
656.Web Science: Understanding the Emergence of Macro-Level Features on the World Wide Web
657.Weighted Sum-Rate Maximization in Wireless Networks: A Review
658.Welcome to the World of Single-Slope Column-Level Analog-to-Digital Converters for CMOS Image Sensors
659.Wide-area Oscillation Identification and Damping Control in Power Systems
660.Wireless for Machine Learning: A Survey
661.Wireless Network Optimization by Perron-Frobenius Theory
662.Worker Productivity in Operations Management
-