

1. Record Nr.	UNINA9910624378303321
Titolo	Energy efficient computation offloading in mobile edge computing // Ying Chen [and three others]
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	3-031-16822-4
Descrizione fisica	1 online resource (167 pages)
Collana	Wireless Networks
Disciplina	004
Soggetti	Mobile computing Edge computing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface -- Acknowledgements -- Contents -- Acronyms -- 1 Introduction -- 1.1 Background -- 1.1.1 Mobile Cloud Computing -- 1.1.1.1 Architecture of Mobile Cloud Computing -- 1.1.1.2 Characteristics of Mobile Cloud Computing -- 1.1.1.3 Cloudlet -- 1.1.1.4 Fog Computing -- 1.1.1.5 Data Security and Privacy Protection -- 1.1.1.6 Challenges of Mobile Cloud Computing -- 1.1.2 Mobile Edge Computing -- 1.1.2.1 Definition of Mobile Edge Computing -- 1.1.2.2 Architecture of Mobile Edge Computing -- 1.1.2.3 Advantages of Mobile Edge Computing -- 1.1.2.4 Applications of Mobile Edge Computing -- 1.1.2.5 Challenges of Mobile Edge Computing -- 1.1.3 Computation Offloading -- 1.1.3.1 Minimize Latency -- 1.1.3.2 Minimize Energy Consumption -- 1.1.3.3 Weighted Sum of Latency and Energy Consumption -- 1.2 Challenges -- 1.3 Contributions -- 1.4 Book Outline -- References -- 2 Dynamic Computation Offloading for Energy Efficiency in Mobile Edge Computing -- 2.1 System Model and Problem Statement -- 2.1.1 Network Model -- 2.1.2 Task Offloading Model -- 2.1.3 Task Queuing Model -- 2.1.4 Energy Consumption Model -- 2.1.5 Problem Statement -- 2.2 EEDCO: Energy Efficient Dynamic Computing Offloading for Mobile Edge Computing -- 2.2.1 Joint Optimization of Energy and Queue -- 2.2.2 Dynamic Computation Offloading for Mobile Edge Computing -- 2.2.3 Trade-Off Between Queue Backlog and Energy Efficiency -- 2.2.4 Convergence and

Complexity Analysis -- 2.3 Performance Evaluation -- 2.3.1 Impacts of Parameters -- 2.3.1.1 Effect of Tradeoff Parameter -- 2.3.1.2 Effect of Arrival Rate -- 2.3.1.3 Effect of Transmit Power -- 2.3.1.4 Effect of Channel Power Gain -- 2.3.1.5 Effect of Number of IoT Devices -- 2.3.2 Performance Comparison with EA and QW Schemes -- 2.4 Literature Review -- 2.5 Summary -- References.

3 Energy Efficient Offloading and Frequency Scaling for Internet of Things Devices -- 3.1 System Model and Problem Formulation -- 3.1.1 Network Model -- 3.1.2 Task Model -- 3.1.3 Queuing Model -- 3.1.4 Energy Consumption Model -- 3.1.5 Problem Formulation -- 3.2 COFSEE: Computation Offloading and Frequency Scaling for Energy Efficiency of Internet of Things Devices -- 3.2.1 Problem Transformation -- 3.2.2 Optimal Frequency Scaling -- 3.2.3 Local Computation Allocation -- 3.2.4 MEC Computation Allocation -- 3.2.5 Theoretical Analysis -- 3.3 Performance Evaluation -- 3.3.1 Impacts of System Parameters -- 3.3.1.1 Effect of Tradeoff Parameter V -- 3.3.1.2 Effect of Arrival Rate -- 3.3.1.3 Effect of Slot Length -- 3.3.2 Performance Comparison with RLE, RME and TSSchemes -- 3.4 Literature Review -- 3.5 Summary -- References -- 4 Deep Reinforcement Learning for Delay-Aware and Energy-Efficient Computation Offloading -- 4.1 System Model and Problem Formulation -- 4.1.1 System Model -- 4.1.2 Problem Formulation -- 4.2 Proposed DRL Method -- 4.2.1 Data Preprocessing -- 4.2.2 DRL Model -- 4.2.2.1 Reinforcement Learning Framework -- 4.2.2.2 Deep Reinforcement Learning Model -- 4.2.3 Training -- 4.2.3.1 Initialization -- 4.2.3.2 Exploration and Data Acquisition -- 4.2.3.3 Replay Experience Buffer -- 4.2.3.4 Learning -- 4.2.3.5 Reward Clipping -- 4.3 Performance Evaluation -- 4.4 Literature Review -- 4.5 Summary -- References -- 5 Energy-Efficient Multi-Task Multi-Access Computation Offloading via NOMA -- 5.1 System Model and Problem Formulation -- 5.1.1 Motivation -- 5.1.2 System Model -- 5.1.3 Problem Formulation -- 5.2 LEEMMO: Layered Energy-Efficient Multi-Task Multi-Access Algorithm -- 5.2.1 Layered Decomposition of Joint Optimization Problem -- 5.2.2 Proposed Subroutine for Solving Problem (TEM-E-Sub). 5.2.3 A Layered Algorithm for Solving Problem (TEM-E-Top) -- 5.2.4 DRL-Based Online Algorithm -- 5.3 Performance Evaluation -- 5.3.1 Impacts of Parameters -- 5.3.2 Performance Comparison with FDMA Based Offloading Schemes -- 5.4 Literature Review -- 5.5 Summary -- References -- 6 Conclusion -- 6.1 Concluding Remarks -- 6.2 Future Directions -- References.
