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Nota di contenuto	Intro -- Preface -- Contents -- Computer Science and Engineering -- Reducing the Gap Between Theory and Applications in Algorithmic Bayesian Persuasion -- 1 Introduction -- 2 The Bayesian Persuasion Framework -- 3 Persuading in Election -- 4 Persuading in Routing -- 5 Persuading in Auctions -- 6 Online Bayesian Persuasion -- 7 Efficient Online Learning Through Mechanism Design -- 8 Conclusions and Future Research -- References -- Modern High-Level Synthesis: Improving Productivity with a Multi-level Approach -- 1 Introduction -- 2 The SODA Synthesizer -- 3 Experimental Results -- 4 Conclusion -- References -- FPGA-Based Design and Implementation of a Code-Based Post-quantum KEM -- 1 Introduction -- 2 Components for QC-MDPC Code-Based Cryptography -- 3 Client-Server BIKE Architecture -- 4 Experimental Evaluation -- 5 Conclusions -- References -- Model-Driven Development of Formally Verified Human-Robot Interactions -- 1 Introduction -- 2 Preliminaries -- 3 Design-Time Analysis and Reconfiguration -- 4 Application Deployment -- 5 Model

Adjustment -- 6 Future Research Outlook -- References -- Electronics -- Electronic Bio-Reconfigurable Impedance Platform for High Sensitivity Detection of Target Analytes -- 1 Introduction -- 2 The Differential Impedance Sensing Approach -- 2.1 Platform Overview and Experimental Protocol -- 2.2 Detection of IgG Antibodies in Human Serum for Dengue Virus Diagnosis -- 3 Multiplex Differential Impedance Sensing -- 3.1 Electronic Multichannel Reading Board -- 3.2 Selective DNA Detection -- 4 Conclusions and Future Perspective -- References -- Development of Crosspoint Memory Arrays for Neuromorphic Computing -- 1 Introduction -- 2 Non-volatile RRAMs -- 3 Volatile RRAMs -- 4 Conclusions -- References -- Systems and Control.
Reconciling Deep Learning and Control Theory: Recurrent Neural Networks for Indirect Data-Driven Control -- 1 Introduction -- 2 Learning Stable RNN Models -- 2.1 Training Procedure -- 3 Control Design -- 3.1 Definition of the Control Problem -- 3.2 NMPC Design -- 3.3 Offset-Free NMPC -- 4 Open Problems and Future Research Directions -- 5 Conclusions -- References -- On Data-Driven Optimization Methods in the Design and Control of Autonomous Systems -- 1 Introduction -- 2 Problem Setup -- 3 Set Membership Global Optimization (SMGO) -- 3.1 Algorithm -- 4 Algorithm Properties -- 5 Sample Applications -- 5.1 Experiment-Based Controller Tuning -- 5.2 Plant-Controller Co-Design -- 6 Conclusions -- References -- Model Predictive Control for Constrained Navigation of Autonomous Vehicles -- 1 Introduction -- 2 Constrained Autonomous Navigation Problem -- 3 Environment Aware MPC for Autonomous Navigation -- 3.1 State Shifting Constraint -- 4 Multi-trajectory MPC -- 5 Navigation Around Obstacles -- 5.1 Exteroceptive Sensor and Convex Under-Approximation of the Free Space -- 5.2 Graph-Based Exploration and Mapping -- 6 Applications to Autonomous Navigation Problems -- 7 Conclusions -- References -- Telecommunications -- Cooperative Processing and Learning Methods for High-Resolution Environmental Perception -- 1 Introduction -- 2 Localization of Mobile Agents in Complex Environments -- 2.1 A Bayesian Tracking Framework for NLOS Compensation -- 3 Federated Learning for Enhanced Perception -- 3.1 Communication-Efficient FL Policy -- 4 Cooperative Localization and Sensing in Connected Vehicle Scenarios -- 4.1 Data-Driven Joint Cooperative Localization and Perception -- 5 Bayesian Federated Learning for Trustworthy Environmental Perception -- 5.1 Channel-Driven Bayesian FL Strategy -- 6 Concluding Remarks -- References.
Synthesis of Filters and Filtering Antennas for Micro and Millimeter Waves Applications -- 1 Synthesis-Based Filter Design -- 1.1 Accurate Synthesis of Extracted-Pole Filters -- 1.2 Synthesis of Cascade-Block Filters -- 1.3 Synthesis-Based Filter Design -- 2 Synthesis-Based Antenna Design -- 3 Synthesis-Based Filtenna Design -- 4 Conclusion -- References -- Innovative Cross-Layer Optimization Techniques for the Design of Optical Networks -- 1 Introduction -- 2 Optical Amplifier Placement in Metro Networks -- 2.1 Introduction and Problem Description -- 2.2 Genetic Algorithm for OA Placement -- 2.3 Illustrative Numerical Results -- 3 Minimizing Equipment Cost in Mixed 10G/100G/200G Filterless Horseshoes with Hierarchical OTN Boards -- 3.1 Introduction and Problem Description -- 3.2 Strategies to Solve MinOTN -- 3.3 Illustrative Numerical Results -- 4 Machine Learning for Quality-of-Transmission Estimation of Unestablished Lightpaths in Wavelength Switched Optical Networks -- 4.1 Introduction and Problem Description -- 4.2 Illustrative Numerical Result -- References.

Sommario/riassunto

This open access book presents outstanding doctoral dissertations in Information Technology from the Department of Electronics,

Information and Bioengineering, Politecnico di Milano, Italy. Information Technology has always been highly interdisciplinary, as many aspects have to be considered in IT systems. The doctoral studies program in IT at Politecnico di Milano emphasizes this interdisciplinary nature, which is becoming more and more important in recent technological advances, in collaborative projects, and in the education of young researchers. Accordingly, the focus of advanced research is on pursuing a rigorous approach to specific research topics starting from a broad background in various areas of Information Technology, especially Computer Science and Engineering, Electronics, Systems and Control, and Telecommunications. Each year, more than 50 PhDs graduate from the program. This book gathers the outcomes of the best theses defended in 2021-22 and selected for the IT PhD Award. Each of the authors provides a chapter summarizing his/her findings, including an introduction, description of methods, main achievements and future work on the topic. Hence, the book provides a cutting-edge overview of the latest research trends in Information Technology at Politecnico di Milano, presented in an easy-to-read format that will also appeal to non-specialists.

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Autore	Luo Jun
Titolo	Proceedings of the 7th International Workshop on the TianQin Science Mission; 25–26 April 2024, Hong Kong SAR, China : Progress on the TianQin Science Mission and in Gravitational Wave Detection / / edited by Jun Luo, Vadim Milyukov, Ze-Bing Zhou, Hsien-Chi Yeh, Jianwei Mei
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Altri autori (Persone)	MilyukovVadim ZhouZe-Bing YehHsien-Chi MeiJianwei
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Nota di contenuto	1. Ten Years of TianQin Project -- 2. A brief introduction to the TianQin project -- 3. Gravitational Wave Astrophysics with TianQin -- 4. Primordial Intermediate-mass Binary Black Holes as Targets for Space Laser Interferometers -- 5. Gravitational wave and radio observations of Galactic inspiraling double neutron stars.
Sommario/riassunto	This book contains the key themes and insights from the presentations and posters presented at the Seventh International Workshop on the TianQin Science Mission (TQ7). TianQin, a Chinese space-based gravitational wave detection mission was initiated in 2014 and has since achieved several significant milestones, including the launch of the TianQin-1 experimental satellite. The construction of the TianQin-2 experimental satellites is currently underway, with a projected launch

date set for 2026. These advancements are laying the groundwork for the TianQin-3 gravitational wave detection mission with the target launch around 2035. The book documents progress in the TianQin project ranging from scientific research to technological innovation and data analysis. Additionally, it provides updates on other gravitational wave detection missions, such as LISA, DECIGO, CPTA, and AliCPT. It serves as a valuable resource for professionals in the field and for anyone with a keen interest in the ongoing advancements in space science.