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Titolo	Knowledge-Based Systems in Astronomy [[electronic resource] /] / edited by Andre HECK, Fionn Murtagh
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Collana	Lecture Notes in Physics, , 0075-8450 ; ; 329
Disciplina	520
Soggetti	Observations, Astronomical Astronomy—Observations Astrophysics Geophysics Artificial intelligence Astronomy, Observations and Techniques Astrophysics and Astroparticles Geophysics/Geodesy Artificial Intelligence
Lingua di pubblicazione	Inglese
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Nota di contenuto	Artificial intelligence applications for Hubble Space Telescope operations -- Knowledge based telescope scheduling -- Survey work with automated data analysis -- Distributed point-pattern matching -- Decision problems in the search for periodicities in gamma-ray astronomy. How can A.I. help? -- Classification and knowledge -- WOLF — A computer expert system for sunspot classification and solar flare prediction -- Knowledge based classification of galaxies -- Classification of IUE spectra: A rule based approach -- Representation of knowledge using Fuzzy set theory -- An approach to heuristic exploitation of astronomers' knowledge in automatic interpretation of optical pictures -- Connectionism and neural networks -- Applications of AI in astronomy: A view towards the future.
Sommario/riassunto	This book gives a synthesis of the state of the art in artificial intelligence in astronomy and astrophysics, presents its current

applications and points out directions of future work. The individual chapters report on the application of artificial intelligence techniques for large astronomical surveys, for processing cosmic ray data, for facilitating data reduction using image processing systems, for telescope scheduling, for observatory ground support operations, for observation proposal preparation assistance, and for scientific applications such as stellar spectral and galaxy morphology classification. The new field of connectionism (neural networks) is also surveyed. The book is designed to be self-contained: a glossary of terms used in this area is provided and an index of terms, acronyms and proper names completes the book.

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