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Disciplina	526.1
Soggetti	Geophysics Software engineering Applied mathematics Engineering mathematics Astronomy Astronomy—Observations Geophysics/Geodesy Software Engineering/Programming and Operating Systems Mathematical and Computational Engineering Astronomy, Observations and Techniques
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Writing code for Scientific Software -- Using a code toolbox -- Controlling a Laser Ranging System -- Controlling a VLBI system from remote -- Coordination, communication and automation for the GGOS -- A Style Guide for Geodetic Software in C and C++ -- Precise telescope mount model parameters based on the least squares method.
Sommario/riassunto	This book combines elementary theory from computer science with real-world challenges in global geodetic observation, based on examples from the Geodetic Observatory Wettzell, Germany. It starts with a step-by-step introduction to developing stable and safe scientific software to run successful software projects. The use of

software toolboxes is another essential aspect that leads to the application of generative programming. An example is a generative network middleware that simplifies communication. One of the book's main focuses is on explaining a potential strategy involving autonomous production cells for space geodetic techniques. The complete software design of a satellite laser ranging system is taken as an example. Such automated systems are then combined for global interaction using secure communication tunnels for remote access. The network of radio telescopes is used as a reference. Combined observatories form coordinated multi-agent systems and offer solutions for operational aspects of the Global Geodetic Observing System (GGOS) with regard to "Industry 4.0".