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Nota di contenuto	Section 1 – Modelling & Representing Tangible Heritage of Hampi: Chapter 1. Acquisition, Representation & Display of Digital Heritage Sites -- Chapter 2. A Methodology to reconstruct large damaged regions in heritage structures -- Chapter 3. Recovering the 3D geometry of heritage monuments from image collection -- Chapter 4. Realistic walk through of cultural heritage sites – Hampi -- Chapter 5. Making of Hampi: An attempt to bridge culture & technology -- Chapter 6. Haptic rendering of musical pillars of hampi -- Section 2 – Analysis & Digital Restoration of Artifacts: Chapter 7. Digital renderings, iconographic & iconometric study of Vijayanagara Sculpture -- Chapter 8. A Patch based constrained impainting for damaged mural images -- Chapter 9. Mobile visual search for Digital Heritage Applications -- Chapter 10. Automatic detection & impainting of defaced regions & cracks in heritage monuments -- Chapter 11. Feature matching for architectural scenes -- Chapter 12. Processing of

historic inscription images -- Section 3 – Social Life, Living tradition: Chapter 13. Architectural & Social Life reconstruction of Bazar streets of Hampi: Vijayanagara Period -- Chapter 14. Creating Personalized Avatars -- Chapter 15. Vijayanagar Intangible heritage through Vijayadashami tradition -- Section 4 – Ontology & Knowledge Bank: Chapter 16. An intellectual exploration of the Girija Kalyana -- Chapter 17. The Knowledge Bank of IDH – Hampi. .

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## Sommario/riassunto

The book represents the culmination of a hugely successful heritage preservation project initiated by the Government of India's Department of Science and Technology. It presents extensive research on the digital preservation of the history, mythology, art, architecture and culture of the world heritage site Hampi in Karnataka, the seat of the Vijayanagara dynasty in medieval India. Further, the book introduces readers to a range of techniques developed by Indian technical research groups for digitally preserving both the tangible and intangible cultural heritage of the region. These techniques are sufficiently generic to be applied in heritage preservation efforts for other historical sites around the world as well. Technological advances have made it possible to not only create digital archives of these heritage artifacts, but to also share these resources for people to view, explore, experience, and analyze. This book showcases how cutting-edge technology can be combined with cultural and historical research to digitize and preserve heritage. It is the consolidation of work conducted under the Indian Digital Heritage project, a unique initiative of the Department of Science & Technology (DST), Government of India. The project involved collaboration between researchers in the areas of Technology, Computer Science, Architecture and the Humanities for the digital documentation and interpretation of India's tangible and intangible heritage. It highlights the art, architecture, and cultural legacy of the world heritage site of Hampi in Karnataka, the medieval capital of the 14th-16th century Vijayanagara dynasty. The contributors to this book are scientists and technology experts from prominent academic institutes in India such as the IITs (Indian Institutes of Technology), NIIT, and NID (National Institute of Design) working in collaboration with some of India's top architects, art historians, anthropologists, heritage groups and multi-disciplinary cultural institutions such as the National Institute of Advanced Studies (NIAS). Their papers will introduce readers to cutting-edge technologies from research areas such as computer vision, 3D modeling and artificial intelligence as they are employed to preserve art and culture in the digital domain. The book is divided into four parts. Part 1 details efforts and techniques for modeling and representing the tangible heritage of Hampi, such as the reconstruction of damaged structures, realistic walk-throughs, and haptic rendering. Part 2 includes chapters detailing the analysis and digital restoration of artifacts such as mural paintings, inscriptions and sculptures, as well as mobile-based visual search for artifacts. Part 3 includes chapters on conjectural re-constructions of the architectural life, social life and traditions of Hampi. Lastly, Part 4 addresses the knowledge-based archiving and exploration of cultural heritage.

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