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Collana	Technology in Action
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Nota di contenuto	Contents at a Glance; Contents; About the Authors; Acknowledgments; Introduction; Part I: The 3D-Printing Ecosystem; Chapter 1: The Desktop 3D Printer; What Is 3D Printing?; Commercial 3D Printers; Desktop 3D Printers; Desktop 3D-Printer Hardware; Types of Filament-Based 3D Printers; Cartesian Printers; Non-Cartesian Printers; 3D Printer Options; Heated Beds; Multiple Extruders; Electronics Options; Open Source; Summary; Chapter 2: What Is MatterControl?; The 3D-Printing Workflow; Step 1. Obtain a 3D Model; 3D Model File Formats; What Does "Watertight and Manifold" Mean? Step 2. Slice the 3D Model Step 3. Reviewing the Sliced File and Printing; MatterControl's Capabilities; Using an SD Card; The MatterControl Touch Tablet; A Note about 3D Print Durations; Summary; Chapter 3: Downloading and Configuring MatterControl; Getting Started Using MatterControl; MatterControl Home Screen; OPTIONS Menus; Hardware Settings; Automatic Print Leveling; EEPROM Settings; Gcode Terminal; Cloud Settings; Sec9; Cloud Monitoring; Notification Settings; Application Settings; Update Notification Feed; Language Options; Slice Engine; Change Display Mode Clear Print HistoryTheme/Display Options; The MatterControl Touch Tablet; Summary; Part II: The 3D-Printing Process; Chapter 4: Making a

3D Model; Where to Get 3D Models; Scanning a Model; Consumer-Level 3D Scanners; Scanners for Biological Applications; Downloading and Modifying Existing Models; Creating a 3D Model from Scratch; Using a 3D-Modeling Program; Types of 3D-Modeling Software; Options for Getting Started Quickly; Tinkercad: Drag and Drop; OpenSCAD: A CAD Programming Environment; Programs for Specific Applications; Engineering and Architecture Programs
Visual-Effects and Sculptural Programs Design Considerations; Complexity Is Free (but Simplicity May Not Be); Speed vs. Customization; Summary; Chapter 5: Slicing a 3D Model; What Is "Slicing"?; 3D Printing as Cooking; The Physicality of 3D Printing; 3D Printing Design Rules; Slicing a Model Using MatterControl; Picking One of the Slice Engines; Running the Program; Changing the Slice Engine Settings; Layer-by-Layer Preview; Saving a File to Be Printed; Slice Engine Settings and What They Mean; Starting a Print and Getting a Model to Stick to the Platform; Skirts; Brims; Rafts
Heated Platforms, Tape, and Other Sticky Stuff Supporting and Orienting a Model; Support; Orientation; Avoiding Support by Cutting a Model into Pieces; Bridging; Tolerances; Speed; Managing Internal Open Space; Perimeters; Infill; Details, Details: Retraction; Learning More; Summary; Chapter 6: Controlling Your 3D Printer; G-code and Firmware; Understanding G-code; M (Machine) Codes; Using MatterControl to Control Your Printer; Connecting to Your Printer and Starting a Print; When a Print Starts; During a Print; When a Print Finishes Normally
Getting a Part off the Build Platform

Sommario/riassunto

In 3D Printing With MatterControl, Joan Horvath and Rich Cameron, the team behind Mastering 3D Printing, explain step-by-step how to use the MatterControl program, which allows you to control many common types of 3D printers (including both cartesian and delta style machines). 3D Printing With MatterControl can stand alone, or it can be a companion to Mastering 3D Printing to show you how to install, configure, and use best practices with your printer and printing software. The book includes both step by step software walkthroughs and case studies with typical 3D printed objects. Whether you are a "maker" or a teacher of makers, 3D Printing with MatterControl will show you how to get the most out of your printer with the new standard for open source 3D printing software. While there are books available on 3D printers, and even a few on software to make models for printers, there are few good sources covering the software that actually controls these printers. MatterControl is emerging as the leading open source software for 3D printers, and 3D Printing With MatterControl covers this new standard in this brief book.