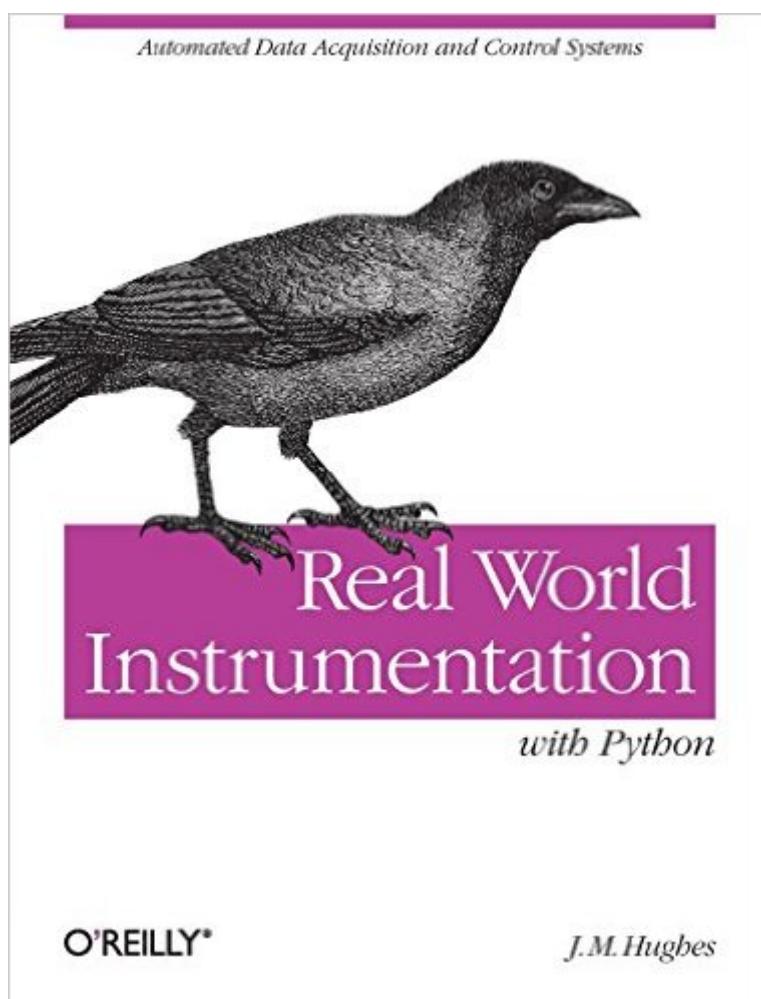


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# Real World Instrumentation With Python: Automated Data Acquisition And Control Systems



## Synopsis

Learn how to develop your own applications to monitor or control instrumentation hardware. Whether you need to acquire data from a device or automate its functions, this practical book shows you how to use Python's rapid development capabilities to build interfaces that include everything from software to wiring. You get step-by-step instructions, clear examples, and hands-on tips for interfacing a PC to a variety of devices. Use the book's hardware survey to identify the interface type for your particular device, and then follow detailed examples to develop an interface with Python and C. Organized by interface type, data processing activities, and user interface implementations, this book is for anyone who works with instrumentation, robotics, data acquisition, or process control. Understand how to define the scope of an application and determine the algorithms necessary, and why it's important. Learn how to use industry-standard interfaces such as RS-232, RS-485, and GPIB. Create low-level extension modules in C to interface Python with a variety of hardware and test instruments. Explore the console, curses, TkInter, and wxPython for graphical and text-based user interfaces. Use open source software tools and libraries to reduce costs and avoid implementing functionality from scratch.

## Book Information

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## Customer Reviews

This a comprehensive handbook for Interfacing Instrumentation With Computers and Programming of Data Acquisition, Analysis and Display. This extensive introduction and cookbook approach will be invaluable to a number of audiences, including: 1. Laboratory Scientists for whom the computer

is a tool to perform their research in domains ranging from psychophysiology to high-energy physics, 2. Control System and Process Plant Engineers who need to interface, control and data log from a variety of equipment in a reliable manner, 3. Embedded System Engineers and Designers who need an understanding of interfacing to a variety of equipment and developing application programs for data analysis and control, and 4. Hobbyists and Makers who may have experimented with Arduino and simple Open Source hardware who now need to make computers work in a real application (or who may wish to interface a conventional PC to other hardware). This book develops the background for Interfacing and Programming Computers in all Real-Time Applications. It does much more than it claims in being a programming manual for Python in Instrumentation Applications. The background needed to understand what Instrumentation is and how it is used in a variety of applications is provided; this handbook also goes into the essential Electronics for all sorts of computer and instrumentation interfaces; a self-sufficient Python Programming tutorial is provided, the Tools and Methods of hardware interfacing and testing is given; all of these topics are well covered in sufficient detail for the novice in addition to the extensive tutorial on Programming Data Acquisition, Analysis, Logging and Graphical Display promised in the title.

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