



# Embedded Operating Systems: A Practical Approach (Undergraduate Topics in Computer Science)

*By Alan Holt, Chi-Yu Huang*

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## Embedded Operating Systems: A Practical Approach (Undergraduate Topics in Computer Science) By Alan Holt, Chi-Yu Huang

This practically-oriented textbook provides a clear introduction to the different component parts of an operating system and how these work together. The easy-to-follow text covers the bootloader, kernel, filesystem, shared libraries, start-up scripts, configuration files and system utilities. The procedure for building each component is described in detail, guiding the reader through the process of creating a fully functional GNU/Linux embedded OS. Features: presents a concise overview of the GNU/Linux system, and a detailed review of GNU/Linux filesystems; describes how to build an embedded system to run on a virtual machine, and to run natively on an actual processor; introduces the concept of the compiler toolchain, demonstrating how to develop a cross toolchain so that programs can be built on a range of different architectures; discusses the ARM-based platforms BeagleBone and Raspberry Pi; explains how to build OpenWRT firmware images for OMxP Open-mesh devices and the Dragino MS14 series.

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### Editorial Review

From the Back Cover

This practically-oriented textbook/reference provides a clear introduction to the different component parts of an operating system and how these work together.

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#### Topics and features:

- Presents a concise overview of the GNU/Linux system, and a detailed review of GNU/Linux filesystems
- Describes how to build an embedded system to run on a virtual machine, and to run natively on an actual processor
- Introduces the concept of the compiler toolchain, demonstrating how to develop a cross toolchain so that programs can be built on a range of different architectures
- Discusses the ARM-based platforms BeagleBone and Raspberry Pi
- Explains how to build OpenWRT firmware images for OMxP Open-mesh devices and the Dragino MS14 series

Ideal for undergraduate and graduate level students studying operating systems, the book will also prove to be highly useful to industry professionals involved in this area.

**Dr. Alan Holt** is Chief Technical Officer at the network consultancy company IP Performance Ltd., based in Bristol, UK. His publications include the Springer title *Network Performance Analysis: Using the J Programming Language*. **Dr. Chi-Yu Huang** works for Tata Technologies Ltd., and is currently a software consultant on the Airbus project in Bristol. She was formerly Operations Manager for DL Consulting, New Zealand. Together with Dr. Holt, she is also co-author of the Springer book *802.11 Wireless Networks: Security and Analysis*.

#### About the Author

**Dr. Alan Holt** is Chief Technical Officer at the network consultancy company IP Performance Ltd., based in Bristol, UK. His publications include the Springer title *Network Performance Analysis: Using the J Programming Language*.

**Dr. Chi-Yu Huang** works for Tata Technologies Ltd., and is currently a software consultant on the Airbus project in Bristol. She was formerly Operations Manager for DL Consulting, New Zealand. Together with Dr. Holt, she is also co-author of the Springer book *802.11 Wireless Networks: Security and Analysis*.

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