

Irv Englander

4th
Edition

The Architecture of
**COMPUTER HARDWARE,
SYSTEMS SOFTWARE
& NETWORKING**

Thu Vien DHKTCN-TN



SDH11000062

An Information Technology Approach

International Student Version

FOURTH EDITION

THE ARCHITECTURE OF COMPUTER HARDWARE, SYSTEM SOFTWARE, AND NETWORKING

AN INFORMATION TECHNOLOGY APPROACH

Irv Englander

Bentley University



WILEY

John Wiley & Sons, Inc.

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This book was set in 10/12 Minion by Laserwords India and printed and bound by Courier/Westford. The cover was printed by Courier/Westford.

The book is printed on acid free paper. ☺

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To order books or for customer service please, call 1-800-CALL WILEY (225-5945).

ISBN-13: 978-0471-71542-9

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

To four outstanding teachers and great human beings:
With your guidance, inspiration, and patience, you showed me
that everything is possible.

Dr. Sidney H. Englander (1900–1980)
and Mildred K. Englander (1906–2008),
in memoriam my father and mother

Albert L. Daugherty, in memoriam
teacher of Science in Cleveland Heights, Ohio
from 1927 to 1970

Edith B. Malin, in memoriam
teacher of English in Cleveland Heights, Ohio
from 1924 to 1958

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