

# AN INTRODUCTION TO INFORMATION THEORY

---

---

Symbols, Signals & Noise

JOHN R. PIERCE

Professor of Engineering  
California Institute of Technology

Second, Revised Edition

Dover Publications, Inc.  
New York

# Contents

---

	PREFACE TO THE DOVER EDITION	vii
I.	THE WORLD AND THEORIES	1
II.	THE ORIGINS OF INFORMATION THEORY	19
III.	A MATHEMATICAL MODEL	45
IV.	ENCODING AND BINARY DIGITS	64
V.	ENTROPY	78
VI.	LANGUAGE AND MEANING	107
VII.	EFFICIENT ENCODING	125
VIII.	THE NOISY CHANNEL	145
IX.	MANY DIMENSIONS	166
X.	INFORMATION THEORY AND PHYSICS	184
XI.	CYBERNETICS	208
XII.	INFORMATION THEORY AND PSYCHOLOGY	229
XIII.	INFORMATION THEORY AND ART	250
XIV.	BACK TO COMMUNICATION THEORY	268
	APPENDIX: ON MATHEMATICAL NOTATION	278
	GLOSSARY	287
	INDEX	295