

CONTENTS

Preface	vii
In Memoriam—Professor Al Manson.....	viii
Group Photo.....	xi

I. ESTIMATION AND INFERENCE

Frequency Estimation, Multiple Stationary Nonsinusoidal Resonances with Trend.....	3
G. L. Bretthorst	
A Bayesian Approach to Estimating Coupling between Neural Components: Evaluation of the Multiple Component, Event-Related Potential (mcERP) Algorithm.....	23
A. S. Shah, K. H. Knuth, W. A. Truccolo, M. Ding, S. L. Bressler, and C. E. Schroeder	
Bayesian Estimation of Fish Disease Prevalence from Pooled Samples Incorporating Sensitivity and Specificity.....	39
C. J. Williams and C. M. Moffitt	
Using Bayesian Analysis and Maximum Entropy to Develop Non-Parametric Probability Distributions for the Mean and Variance	53
W. J. Price, H. J. Price, and B. Shafii	
Chernoff's Bound Forms.....	62
M. Grendar, Jr. and M. Grendar	

II. APPLICATIONS IN PHYSICS

Maximum Entropy Approach to a Mean Field Theory for Fluids	73
C.-Y. Tseng and A. Caticha	
Hierarchies of Models: Toward Understanding Planetary Nebulae	92
K. H. Knuth and A. R. Hajian	
Dirichlet Integral Principle for Elliptic Type Quasilinear PDEs of Irreversible Heat Conduction Process with Minimum Principles for First, Second, and Third Type Boundary Conditions	104
E. Kiss	
Bayesian Analysis of Magnetic Island Dynamics	124
R. Preuss, M. Maraschek, H. Zohm, and V. Dose	

III. SIGNAL SEPARATION AND CLASSIFICATION

Learning in Presence of Input Noise Using the Stochastic EM Algorithm	135
H. Snoussi, A.-K. Seghouane, A. Mohammad-Djafari, and G. Fleury	
A Bayesian Classification Model for Real-Time Intrusion Detection	150
R. S. Puttini, Z. Marrakchi, and L. Mé	

A Bayesian Analysis of Recent Developments in Pattern Classification	163
J. L. Center, Jr.	
Statistical Problems with Weather-Radar Images,	
I: Clutter Identification	190
J.-J. Fernández-Durán and G. Upton	
Statistical Problems with Weather-Radar Images,	
II: Attenuation Detection	198
J.-J. Fernández-Durán and G. Upton	
Wavelet Domain Image Separation	208
A. Mohammad-Djafari and M. Ichir	

IV. INDUCTIVE LOGIC THEORY

What Is a Question?	227
K. H. Knuth	
Logical and Geometric Inquiry	243
R. I. Joseph, R. L. Fry, and V. Dogra	
Yet Another Analysis of Dice Problems	281
A. Mohammad-Djafari	

V. PRIOR SPECIFICATION

Information Geometry and Prior Selection.	307
H. Snoussi and A. Mohammad-Djafari	
An Entropy Approach for Utility Assignment in Decision Analysis	328
A. E. Abbas	
Entropy Methods for Univariate Distributions in Decision Analysis.	339
A. E. Abbas	
Hyperplane Priors	350
V. Dose	

VI. TUTORIALS

Maximum Entropy in the Mean: A Useful Tool for Constrained	
Linear Problems	361
H. Gzyl	
A Bayesian Approach for Data and Image Fusion.	386
A. Mohammad-Djafari	
Author Index	409