Contents

Preface vii

Contributors ix

1 THE GMDH ALGORITHM 1
Stanley J. Farlow

2 ADAPTIVE LEARNING NETWORKS: DEVELOPMENT AND APPLICATION IN THE UNITED STATES OF ALGORITHMS RELATED TO GMDH 25
Roger L. Barron, Anthony N. Mucciardi, Francis J. Cook, Joseph Nelson Craig, and Andrew R. Barron

3 REGRESSION WITHOUT MODELS: DIRECTIONS IN THE SEARCH FOR STRUCTURE 67
James M. Malone II

4 PREDICTED SQUARED ERROR: A CRITERION FOR AUTOMATIC MODEL SELECTION 87
Andrew R. Barron

5 PAST, PRESENT, AND FUTURE OF GMDH 105
A. G. Ivakhnenko

6 FORECASTING APPLICATIONS OF GMDH IN AGRICULTURAL AND METEOROLOGICAL TIME SERIES 121
William M. Lebow, Raman K. Mehra, Harbert Rice, and Paul M. Toldalagi

7 NONLINEAR PREDICTION MODELS FOR RIVER FLOWS AND TYPHOON PRECIPITATION BY SELF-ORGANIZING METHODS 149
Saburo Ikeda

8 LET'S ASK GMDH WHAT EFFECT THE ENVIRONMENT HAS ON FISHERIES 169
Hugh A. Brooks and Thomas H. Probert

9 PREDICTIVE GMDH MODELS OF SHRIMP CATCHES: SOME PRACTICAL CONSIDERATIONS 179
Michael H. Prager and Saul B. Saila

10 GMDH FORECASTING OF U.S. INTEREST RATES 199
Kenichi Ohashi

11 A METHOD FOR PREDICTING SALES AMOUNT BY THE USE OF IWSM AND GMDH 215
Junji Nomura

12 ON REVISED ALGORITHMS OF GMDH WITH APPLICATIONS 225
Hiroyuki Tamura and Tadashi Kondo

13 AN APPLICATION OF THE GMDH ALGORITHM TO ECONOMIC MODELING 243
Donald E. Scott and Charles E. Hutchinson

14 APPLICATION OF GMDH TO ENVIRONMENTAL SYSTEM MODELING AND MANAGEMENT 257
Shin-ichi Fujita and Hiroshi Koi

15 A FORTRAN PROGRAM FOR THE GMDH ALGORITHM 277
Stanley J. Farlow

16 AN SAS PROGRAM FOR SIMPLIFIED GMDH MODELS 291
Michael H. Prager

Bibliography 317

Index 349