

FILE COPY

1

AD-A210 276

A BRIEF BIBLIOGRAPHY OF STATISTICAL CLASSIFICATION
PROCEDURES: DECISION-THEORETIC APPROACH *

by

Lii-Yuh Leu

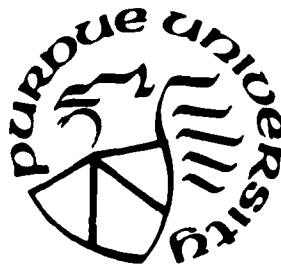
Purdue University and National Central University

Technical Report #89-15

DT

PURDUE UNIVERSITY

DTIC
ELECTE
JUL 14 1989
S D D
cb



DEPARTMENT OF STATISTICS

DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

89 7 13 052

1

**A BRIEF BIBLIOGRAPHY OF STATISTICAL CLASSIFICATION
PROCEDURES: DECISION-THEORETIC APPROACH ***

by

Lii-Yuh Leu

Purdue University and National Central University

Technical Report #89-15

**DTIC
ELECTE
JUL 14 1989
S D D**

DTIC
COPY
INSPECTED
1

**Department of Statistics
Purdue University**

June 1989

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

DISTRIBUTION STATEMENT A

**Approved for public release;
Distribution Unlimited**

* The preparation of this paper was supported in part by the Office of Naval Research Contract N00014-88-K-0170 at Purdue University; Project Director is Professor Shanti S. Gupta.

A BRIEF BIBLIOGRAPHY OF STATISTICAL CLASSIFICATION
PROCEDURES: DECISION-THEORETIC APPROACH

by

Lii-Yuh Leu

Purdue University and National Central University

- Aitchison, J., Habhema, J.D.F. and Kay, J.W. (1977). A critical comparison of two methods of statistical discrimination. *Appl. Statist.* **26**, 15-25.
- Albrecht, V. (1984). On the convergence rate of probability of error in Bayesian discrimination between two Gaussian processes. *Asymp. Stat.* **2**, 165-175.
- Anderson, T.W. (1951). Classification by multivariate Analysis. *Psychometrika* **16**, 31-50.
- Anderson, T.W. (1964). On Bayes procedures for a problem with choice of observations. *Ann. Math. Statist.* **35**, 1128-1135.
- Bai Zhidong (1985). Approximate Bayes discrimination. *Acta. Math. Sinica* **28**, 522-529.
- Bandyopadhyay, S. (1983). Admissibility of likelihood ratio rules in covariate classification using dependent samples. *Austral. J. Statist.* **25**, 482-486.
- Banerjee, K.S. and Marcus, L.F. (1965). Bounds in a minimax classification procedure. *Biometrika* **52**, 653-654.
- Bernardo, J.M. and Bermudez, J.D. (1985). The choice of variables in probabilistic classification - with discussion. *Bayesian Statistics* **2**, 67-82.
- Binder, D.A. (1978). Bayesian cluster analysis. *Biometrika* **65**, 31-38.
- Binder, D.A. (1981). Approximations to Bayesian clustering rules. *Biometrika* **68**, 275-285.
- Birnbaum, Allan and Maxwell, A.E. (1960). Classification procedures based on Bayes' formula. *Appl. Statist.* **9**, 152-169.
- Blattberg, R.C. and Sen, S.K. (1975). A Bayesian technique to discriminate between stochastic models of brand choice. *Manag. Sci.* **21**, 682-696.
- Borowiak, D. (1983). A multiple model discrimination procedure. *Commun. Statist. Theor. Meth.* **12**, 2911-2921.
- Boscaiu, V. (1985). On a general classification problem. *Proc. 7th Conf. Prob. Theory. Brasov*, 649-653.
- Browdy, B.L. and Chang, P.C. (1982). Bayes procedures for the classification of multiple polynomial trends with dependent residuals. *J. Amer. Stat. Ass.* **77**, 483-487.
- Cacoullos, T. (1965). Comparing Mahalanobis distances I: comparing distances between k known normal populations and another unknown. *Sankhyā A* **27**, 1-22.

- Cacoullos, T. (1965). Comparing Mahalanobis distances II: Bayes procedures when the mean vectors are unknown. *Sankhyā A* 27, 23–32.
- Cacoullos, T. (1966). On a class of admissible partitions. *Ann. Math. Statist.* 37, 189–195.
- Choi, Keewhan (1969). Empirical Bayes procedures for (pattern) classification with stochastic learning. *Ann. Inst. Statist. Math. Tokyo* 21, 117–125.
- DasGupta, S. (1973). Theories and methods in classification: a review. *Discriminant Analysis and Applications*. T. Cacoullos, ed. Academic Press, 77–137.
- DeRouen, T.A. and Sarma, Y.R. (1975). G_1 -minimax procedures for the case of prior distributions in discriminant analysis. *Biometrika* 62, 403–406.
- Dunsmore, I.R. (1966). A Bayesian approach to classification. *J. Roy. Statist. Soc. B* 28, 568–577.
- Dutter, R. (1979). On estimation in the linear model when spurious observations are present — A Bayesian approach. *Commun. Statist. Theor. Meth.* A8, 611–636.
- Enis, P. and Geisser, S. (1974). Optimal predictive linear discriminants. *Ann. Statist.* 2, 403–410.
- Fukunaga, K. and Krile, T.F. (1969). Calculation of Bayes recognition error for two multivariate Caussian distributions. *IEEE Trans. Computers* C-18, 220–229.
- Geisser, S. (1982). Bayesian discrimination. *Handbook of Statistics* 2, 101–120.
- Greblicki, W. (1978). Asymptotically optimal pattern recognition procedures with density estimates. *IEEE Trans. Inf. Theory* IT 24, 250–251.
- Gupta, S.S. and Huang, D.Y. (1975). On Γ -minimax Classification procedures. Proceedings of the 40th session of the International Statistical Institute, Warsaw, 330–335.
- Guseman, Jr. L.F., Peters, Jr. B. and Walker, H.F. (1975). On minimizing the probability of misclassification for linear feature selection. *Ann. Statist.* 3, 661–668.
- Hora, S.C. (1976). Bayesian linear discriminant analysis with informative prior distributions. *Amer. Statist. Ass. Proceedings of Business and Economic Statistics Section* 348–351.
- Hora, S.C. (1977). Bayesian quadratic discriminant analysis. *ASA. Pro. Bu. Ec.* 266–268.
- Hora, S.C. (1978). Sample size determination in Bayesian discriminant analysis. *J. Amer. Statist. Ass.* 73, 569–572.
- Hudimoto, Hiroshi (1968). On the empirical Bayes procedure (1). *Ann. Inst. Statist. Math. Tokyo* 20, 169–185.
- Hudimoto, H. (1976). On the empirical Bayes approach to classification problems. *Essays in Probability and Statistics*, 697–707.

- Johns, Milton V. Jr. (1961). An empirical Bayes approach to non-parametric two-way classification. *Stud. Item. Anal. predict* (ed. Solomon), 221-232.
- Kashyap, R.C. (1978). Optimal feature selection and decision rules in classification problems with time series. *IEEE Trans. Inf. Theory* IT24, 281-288.
- Kelley, R.P. (1985). Bayesian adjustment of the matching discriminant function. *ASA. Pro. St. Cp.* 220-222.
- Kokolakis, G.E. (1981). On the expected probability of correct classification. *Biometrika* 68, 477-483.
- Krzysko, M. (1984). On some asymptotic properties of the discriminant function. *Asympt. Statist.* 2, 317-323.
- Lee, J. C-S (1975). A note on equal-mean discrimination. *Commun. Statist.* A4, 251-254.
- Logan, T.P. (1987). Bayesian discrimination using multiple observations. *Pr. Cmp. Sc. St.* 19, 395-399.
- Marron, J.S. (1983). Optimal rates of convergence to Bayes risk in nonparametric discrimination. *Ann. Statist.* 11, 1142-1155.
- Menzeffricke, U. (1981). Bayesian clustering of data sets. *Commun. Statist. Theor. Meth.* A10, 65-77.
- Menzeffricke, U. (1981). A decision-theoretic approach to variable selection on discriminant analysis. *Commun. Statist. Theor. Meth.* A10, 669-686.
- Mobachlan, G.J. (1977). The bias of sample based posterior probabilities. *Biom. J.* 19, 421-426.
- Ness, J.V. (1980). On the dominance of non-parametric Bayes rule discriminant algorithms in high dimensions. *Pattern. RC.* 12, 355-368.
- Rolph, Williams and Lee (1978). Empirical Bayes and least squares discriminant estimators. *ASA. Pro. So. St.* 89-98.
- Rueschendorf, C. (1984). On the minimum discrimination information theorem. *St. & Dec. Supp. Issue* 1, 263-283.
- Schaefer, R.E. (1977). Bayes' theorem as a diagnostic classification instrument. *Ar. Psych.* 129, 302-318.
- Schervish, M.J. (1984). Linear discrimination for three known normal populations. *J. Statist. Planning Infer.* 10, 167-175.
- Schwemer, G.T. and Dun, Olive, J. (1980). Posterior probability estimators in classification simulations. *Commun. Statist. Simul. Comp.* B9, 133-140.
- Srivastava, J.N. and Zaatar, M.K. (1972). On the maximum likelihood classification rule and its admissibility. *J. Mult. Anal.* 2, 115-126.

- Tsokos, C.P. and Welch, L.W. (1979). Lack of robustness of the Bayes optimal discriminant procedure with 0-1 loss. *Ap. Ma. & Cmp.* 5, 131-148.
- Wingnall, T.K. (1969). Generalized Bayesian classification functions: k classes. *Econ. Geol.* 64, 571-574.
- Wojciechowski, T. (1985). The empirical Bayes classification rule for mixtures of discrete and continuous variable. *Biometric J.* 27, 521-532.
- Zhezhel, Y.N. (1974). Minimal essentially complete class of discrimination rules for unknown moments of higher orders. *The 74th Prob. Application* 19, 801.

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS										
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release, distribution unlimited.										
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE													
4. PERFORMING ORGANIZATION REPORT NUMBER(S) Technical Report #89-15			5. MONITORING ORGANIZATION REPORT NUMBER(S)										
6a. NAME OF PERFORMING ORGANIZATION Purdue University		6b. OFFICE SYMBOL (if applicable)	7a. NAME OF MONITORING ORGANIZATION										
6c. ADDRESS (City, State, and ZIP Code) Department of Statistics West Lafayette, IN 47907			7b. ADDRESS (City, State, and ZIP Code)										
8a. NAME OF FUNDING/SPONSORING ORGANIZATION Office of Naval Research		8b. OFFICE SYMBOL (if applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER N00014-88-K-0170										
8c. ADDRESS (City, State, and ZIP Code) Arlington, VA 22217-5000			10. SOURCE OF FUNDING NUMBERS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">PROGRAM ELEMENT NO.</td> <td style="width: 25%;">PROJECT NO.</td> <td style="width: 25%;">TASK NO.</td> <td style="width: 25%;">WORK UNIT ACCESSION NO.</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.				
PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.										
11. TITLE (Include Security Classification) A BRIEF BIBLIOGRAPHY OF STATISTICAL CLASSIFICATION PROCEDURES: DECISION-THEORETIC APPROACH (Unclassified)													
12. PERSONAL AUTHOR(S) Lii-Yuh Leu													
13a. TYPE OF REPORT Technical		13b. TIME COVERED FROM _____ TO _____		14. DATE OF REPORT (Year, Month, Day) June 1989	15. PAGE COUNT 5								
16. SUPPLEMENTARY NOTATION <div style="text-align: center; margin-top: 10px;"> </div>													
17. COSATI CODES <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 33%;">FIELD</th> <th style="width: 33%;">GROUP</th> <th style="width: 33%;">SUB-GROUP</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>			FIELD	GROUP	SUB-GROUP				18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number) Classification, Discriminant Analysis, Bayes rules, Empirical Bayes, r-minimax, Admissible, Probability of Misclassification.				
FIELD	GROUP	SUB-GROUP											
19. ABSTRACT (Continue on reverse if necessary and identify by block number) (KR) ← END This bibliography lists references pertaining to the classification problem based on a decision-theoretic approach. In spite of efforts to make it an exhaustive bibliography, this claim may not be justified. Any responsibility for any omissions rests solely with the author.													
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified										
22a. NAME OF RESPONSIBLE INDIVIDUAL Shanti S. Gupta			22b. TELEPHONE (Include Area Code) 317-494-6031		22c. OFFICE SYMBOL								