

Differential Geometry in Statistical Inference

by S.-I. Amari, O. E. Barndorff-Nielsen, R. E. Kass, S. L. Lauritzen,
and C. R. Rao

The papers collected here present, in a concise yet comprehensive form, several major developments of recent research on differential geometry in statistics.

Contents

Introduction by R. E. Kass

Differential Geometrical Theory of Statistics—Towards New Developments

by S.-I. Amari

Introduction; Geometrical Structure of Statistical Models; Higher-Order Asymptotic Theory of Statistical Inference in Curved Exponential Family; Information, Sufficiency and Ancillarity Higher Order Theory; Fibre-Bundle Theory of Statistical Models; Estimation of Structural Parameter in the Presence of Infinitely Many Nuisance Parameters; Parametric Models of Stationary Gaussian Time Series; References

Differential and Integral Geometry in Statistical Inference by O. E. Barndorff-Nielsen

Introduction; Review and Preliminaries; Transformation Models; Transformation Submodels; Maximum Estimation and Transformation Models; Observed Geometries; Expansion of $c|j|^{1/2}$; Exponential Transformation Models; Appendices and References

Statistical Manifolds by S. L. Lauritzen

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Differential Metrics in Probability Spaces by C. R. Rao

Introduction; Jensen Difference and Entropy Differential Metric; The Quadratic Entropy; Metrics Based on Divergence Measures; Other Divergence Measures; Geodesic Distances; References

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