

Extreme Value Theory and Applications
Proceedings of the Conference on Extreme Value
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Preface

It appears that we live in an age of disasters: the Mississippi and the Missouri rivers flood millions of acres, earthquakes hit Tokyo and California, airplanes crash due to mechanical failure, and powerful windstorms cause increasingly costly damage. While these may seem to be unexpected phenomena to the man in the street, they are actually happening according to well defined rules of science known as extreme value theory. For many phenomena records must be broken in the future, so if a design is based on the worst case of the past then we are not really prepared for the future. Materials will fail due to fatigue: even if the body of an aircraft looks fine to the naked eye, it might suddenly fail if the aircraft has been in operation over an extended period of time. Extreme value theory has by now penetrated the social sciences, the medical profession, economics and even astronomy. We believe this field has come of age. To utilize and stimulate progress in the theory of extremes and promote its application, an international conference was organized in which equal weight was given to theory and practice.

The Proceedings are published in three Volumes. Volume I, published by Kluwer Academic Publishers, contains papers of general interest in extreme value theory and practice. Volume II, this Special Issue of the NIST Journal of Research, contains papers deemed by the Committee to be most directly relevant to NIST's mission. Volume III, NIST Special Publication 866, contains papers selected for their important contribution to a number of specialized topics. All papers have been refereed and we are grateful to the many engineers and scientists from all over the world who served as referees.

The conference was held in May 1993 on the campus of the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland, with its Statistical Engineering Division (SED) acting as host. It was organized by Temple University, Philadelphia, Pennsylvania, and NIST.

The conference had no external funding, and NIST's support was fundamental to its success. We are particularly grateful to Dr. Lundgaard, Chief of SED, whose support was the single most important factor in making the conference happen. The support of NIST's Building and Fire Research Laboratory is also acknowledged with thanks.

The Organizing Committee consisted of Janos Galambos (Chairman), James Lechner, Stefan Leigh (Director of Local Arrangements), James Pickands III, Emil Simiu, and Grace Yang. Stefan's enthusiasm and tireless work was essential for the success of the Conference. The Conference included three special sessions:

The Centennial Session for Emil Gumbel. Churchill Eisenhart introduced the Session. His personal recollections of Gumbel are included in Volume I of the Proceedings. Emil Simiu then spoke on Gumbel's life and work.

The Memorial Session for Josef Tiago de Oliveira. Janos Galambos remembered Tiago, a close friend to many Conference participants, who was on the initial list of invited speakers. M. Ivette Gomes gave a detailed account of his work.

The 80th Birthday Session for B. V. Gnedenko. Janos Galambos summarized the work of Gnedenko as the founder of modern extreme value theory and his contributions to the central limit problem, limit theorems with random sample size, and renewal theory.

The Conference was opened by Dr. Robert Lundgaard who emphasized extreme value theory's role in several scientific and engineering fields. It ended with a panel discussion on the future of extreme value theory and its applications. The Panel was chaired by Janos Galambos, and its members were Enrique Castillo, Laurens de Haan, Lucien Le Cam, and Richard L. Smith.

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