

## In Memoriam



Gerald J. Bierman  
(1941-1987)

**G**ERALD JACK BIERMAN died on September 10, 1987. His death at the age of forty-six was a great shock to his friends and colleagues.

A native of New York, Jerry received the B.S. degree in mathematics from Brooklyn College, Brooklyn, NY, in 1961, followed by the M.S. degree in mathematics in 1962 and in electrical engineering in 1963. He received the Ph.D. degree in mathematics from the Polytechnic Institute of New York, Brooklyn, NY (formerly, Brooklyn Polytechnic Institute) in 1967.

In May of 1967 he moved west to accept an offer at TRW and remained in California for the remainder of his career. He joined Litton Systems Guidance and Control Division in 1968. In 1971 he took a position with the Tracking and Orbit Determination Group at the Jet Propulsion Laboratory, Pasadena, CA. He was the principal contributor in the development of square-root filters/smoothers. His filters were part of the navigation systems for the Viking mission to Mars and the Voyager spacecraft on its mission to Jupiter and Saturn. He was awarded a NASA citation for the estimation package that has since become a part of the JPL mission analysis software.

In 1977 his book *Factorized Methods for Discrete Sequential Estimation* (New York: Academic), summarizing his numerous contributions in estimation and filtering, was published. A decade later, this book remains one of the most cited references on the numerical aspects of Kalman filtering and smoothing. The book is the foundation for subsequent algorithms and software packages developed by Jerry, which are used in many large estimation software systems.

In 1979 he founded Factorized Estimation Applications, Inc., a

company specializing in the development and application of numerically reliable estimation algorithms and software. As president of FEA he acted as consultant to JPL and to numerous companies. He was active in the IEEE Control Systems Society and served one year as an Associate Editor for the *TRANSACTIONS ON AUTOMATIC CONTROL*. In 1986 he was elected a Fellow of the IEEE for his "contributions to the computational aspects and applications of estimation and filtering." At the time of his death he had completed a report on his studies of an improved implementation of the Rauch-Tung-Striebel smoother.

Jerry was a trim and extremely health-conscious individual who exercised enthusiastically every day. During his youth he worked for a time as a circus acrobat, where he and a partner would perform on a narrow platform seventy feet above the ground without a net. Jerry's joys in life were the simple joys: his family and friends, his work, and simply living as vigorously as he knew how.

Jerry's contributions to the computational aspects of estimation, his papers, his software packages, and his book, ensure him wide recognition and respect. His colleagues mourn the loss of an enthusiastic and energetic co-worker and a cherished friend.

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