Filtering with General Gaussian Noise

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Abstract

We give an overview of the filtering problem. The linear filtering problem was solved by R. E KALMAN who gave iterative equations for computing in a dynamic way. It was generalized to non-linear filtering by Kalliaupur-Striebel, and dynamic equations were given as FKK equations. Subsequently Zakai gave techniques to find these complicated equations from simple linear equations. In all this work noise was assumed to be a Brownian motion. We present here generalizations to the case where the noise is a general Gaussian process.

About the Speaker

V. Mandrekar obtained his Ph. D degree from the Department of Statistics at the Michigan State University (MSU) in 1964 after his B.A (Hon) degree in Mathematics from Elphinstone College in Bombay India. He has been a Professor of Statistics and Probability at the MSU since 1972. During this time, he was the Chair of the department for ten years (1975-1985). He was awarded the Distinguished Faculty award in 1990, the first in the history of the department. He has been a visiting scholar at several universities on all continents including a visiting member of Army research Center (Madison, Wisc.), Center for Stochastic Processes (UNC, Chapel Hill), and Senior National
Academy of Science Fellow at the Naval Postgraduate School. V. Mandrekar has been an invited speaker at several International conferences held at various institutions around the world including Oberwolfach, Germany and Trinity College in Ireland. He had guided more than 30 students for Ph. D degrees in Statistics, Probability, Mathematics, Electrical Engineering, Computer Science, and Zoology. His work has been published in several top journals and as Benchmarked papers in Computer Science and Electrical Engineering. He has had grants from NSF, Army Research, ONR and others with support in different areas. Recently he has been writing books. Four recent publications are on the subject of Stochastic PDE (2011), Stochastic integration with respects to jump process (2015), Stochastic Analysis of Gaussian random fields (2016) and Weak convergence of Stochastic processes with statistical applications (2016).

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