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$\mathcal{L}_2 - \mathcal{L}_\infty$ Filtering for Stochastic Time-varying Delay Systems Based on the Bessel-Legendre Stochastic Inequality

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HIGHLIGHTS

- This paper deals with the L_2–L_∞ filtering problem for stochastic systems with time-varying delay.
- We develop a new stochastic integral inequality called Bessel-Legendre stochastic inequality.
- A new Lyapunov-Krasovskii functional is proposed to design a less conservative L_2–L_∞ filter for stochastic time-varying delay systems.
- An L_2–L_∞ performance condition is presented, and then an L_2–L_∞ filtering approach is developed accordingly.

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