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Original Article

Constructive setting for problems of density ratio estimation

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Abstract

We introduce a constructive setting for the problem of density ratio estimation through the solution of a multidimensional integral equation. In this equation, not only its right hand side is approximately known, but also the integral operator is approximately defined. We show that this ill - posed problem has a rigorous solution and obtain the solution in a closed form. The key element of this solution is the novel - matrix, which captures the geometry of the observed samples. We compare our method with previously proposed ones, using both synthetic and real data. Our experimental results demonstrate the good potential of the new approach.

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