Optimal Scoring Design

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Abstract :
Important allocation decisions are more and more guided by scores generated by algorithms or tests. Such scores enhance decision-making by providing information on individuals. However, individuals conscious of being scored might strategically adapt their behavior to enhance their outcomes. Hence, how should such algorithms or tests be designed when they affect individuals' upstream investment incentives? To answer this question, we build a model where a decision-maker (Receiver) has to take an approve-reject decision regarding an agent with unknown type. Receiver wants to accept positive types and reject negatives. The agent always wants to be approved and can covertly acquire a new type at some cost. An intermediary (Sender) commits ex-ante to a scoring rule which assigns a score to the agent as a function of his acquired type. Receiver then approves or reject the agent based on his score. In this setup, we aim at characterizing Receiver-optimal scoring rules.