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Machine learning outside the laboratory

Abstract: When applying automated data analysis to business problems, two main difficulties arise in comparison to clean laboratory-settings: One ceases to be a mere observer of the system under scrutiny, but an actor with incentives, motives and goals. Moreover, instead of a shielded system with well-understood influences, one acts in a complicated environment with big and messy data. We will discuss two techniques that help tackling these challenges: Regularization allows us to perform multivariable regression that tends towards a previously defined status quo and thereby implements "Occam's razor" on automatically trained models. Reinforcement learning provides us with a framework and tools to maximize a reward function in an initially unknown environment.