

STOCHASTIC VIABILITY AND APPLICATIONS

Michel De Lara

École des Ponts ParisTech, Université Paris-Est, Paris, France

Resumen

Mathematical viability theory strives to identify proper initial states and to display strategies that channel the trajectories of a control dynamical system within constraints, over a given time span. We show how to extend the viability framework in the presence of uncertainties. In the robust and stochastic cases, we outline dynamic programming equations. We showcase two examples of robust and stochastic viability: the management of anchovy-hake fisheries in the Peruvian upwelling ecosystem, and hydropower dam management under a “tourism” constraint.