

# CONTROLLING COMPLEX DYNAMICAL SYSTEMS: FROM THEORY TO APPLICATIONS

PATRICK SAINT-PIERRE

The lecture will be divided in three part :

Main concepts that can be handled thanks to Viability Theory: viability, capturability, optimality, stability and versatility for continuous, discrete and hybrid systems. Numerical processes allowing computation of sets as viability kernels, capture basin, Discriminating kernels and approximation of functions that are solutions to Hamilton Jacobi first order partial derivative equation. Some applications to Robotics, Finance, Economics and Management of renewable resources and some results connected with fluctuations and “chaotic evolutions”.