CONSTANT GAIN OPTIMAL OUTPUT FEEDBACK CONTROL FOR A CLASS OF SEMI-LINEAR DYNAMIC SYSTEMS

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Abstract. Consequent to our previous time-varying feedback control law, this manuscript presents a control law that is based on optimizing a constant feedback gain (or operator). Most of the dynamic systems in real-world depend on utilizing available measurements for generating their control inputs. However, these measurements are subject to ambient noise of the systems' operating environment. Hence, generating feedback controls based on noisy measurements are still among the main challenges of such systems. The current manuscript contributes to the development of novel optimal feedback control law, where noisy measurements are employed as feedback signals. A set of numerical computer simulations are provided to demonstrate the effectiveness of the proposed feedback controller. We also compare our results with that of the previous time-varying feedback control law.

Keywords. Constant Feedback Gain, Differential Inclusion, Necessary Conditions of Optimality, Optimal Feedback Control Law, Uncertain semi-linear Dynamic systems.

AMS (MOS) subject classification: 93B52, 49J15,49K15,49K45, 49N30.

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