Sliding Mode Control for Integrator Systems
Part 2: High-Order Systems

Contents

Bibliography

1 High-Order Sliding Mode Control for Integrator Systems

Consider the system

$$\sigma^{(r)} = u + \delta. \tag{1}$$

Nested Aliding Controllers are given by

$$\begin{aligned} u &= -\alpha \Psi_{r-1,r}\left(\sigma, \dot{\sigma}, ..., \sigma^{(r-1)}\right) \\ \Psi_{0,r} &= \text{sign}(\sigma) \\ \Psi_{i,r} &= \text{sign}\left(\sigma^{(i)} + \beta_i N_{i,r} \Psi_{i-1,r}\right) \\ N_{i,r} &= \left(|\sigma|^{\frac{1}{r}} + |\dot{\sigma}|^{\frac{q}{r-1}} + ... + |\sigma^{\frac{q}{r-i+1}}|\right)^{\frac{1}{q}} \end{aligned} \tag{2}$$

THANKS

working in progress