

Method	Advantage	Disadvantage
Trial and Error	<ul style="list-style-type: none"> • Visual stability analysis via phase portraits 	<ul style="list-style-type: none"> • Applicable only to simple systems up to second order
Small Singular Linearization / Gain Scheduling	<ul style="list-style-type: none"> • Good closed-loop performance for a equilibrium point (SSL). • Good closed-loop performance over many equilibrium points (GS). 	<ul style="list-style-type: none"> • Accurate only in a neighborhood around operating point(s) • Controller parameters fixed online • A lot of offline validation required
Feedback Linearization	<ul style="list-style-type: none"> • Globally stable with exponential tracking error • Linear in modeled domain • Bandwidth theoretically infinite for input signal tracking 	<ul style="list-style-type: none"> • Lack of controllability at singularities • Requires exact knowledge and special class of system • More control effort is required • Not robust to uncertainties
Backstepping / Robust / Adaptive	<ul style="list-style-type: none"> • Globally asymptotically stable • Model uncertainties well handled • Systematic procedures • Potential reduction in development time • Useful nonlinearities retained 	<ul style="list-style-type: none"> • Analytic derivative calculation • Feedback control algorithm complex, especially for high order systems