

Model-based optimization

u^*

Pitch controller (PD)
Elevation controller (PID)

$\begin{Bmatrix} V_d \\ V_s \end{Bmatrix}$

Plant (helicopter)

x

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graph TD; A[Model-based optimization] -- "u*" --> B["Pitch controller (PD)<br/>Elevation controller (PID)"]; B -- "Vd<br/>Vs" --> C[Plant helicopter]; C -- "x" --> D(( )); D --> A; D --> B;
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The diagram illustrates a control system for a helicopter. It consists of three main blocks arranged vertically: 'Model-based optimization' at the top, 'Pitch controller (PD) Elevation controller (PID)' in the middle, and 'Plant (helicopter)' at the bottom. A downward arrow labeled u^* connects the optimization block to the controller block. Another downward arrow, labeled with a vector $\begin{Bmatrix} V_d \\ V_s \end{Bmatrix}$, connects the controller block to the plant block. A feedback loop is shown on the right side, where a signal x from the plant is sent back to both the optimization and controller blocks via arrows.