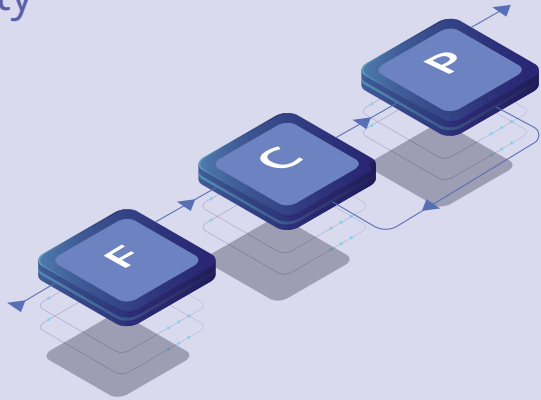
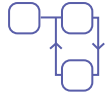


Control Complexity with JuliaSim



JuliaSim Control is a cutting-edge suite of tools for the design, simulation, analysis, and optimization of control systems. Built with Julia and leveraging ModelingToolkit.jl and the JuliaControl ecosystem, it offers a wide array of modeling, simulation, analysis, and design methods that cover every step in the process of control system implementation.

JuliaSim Control is implemented in Julia, a modern, high-performance, open-source programming language that is easy to learn and use. This allows users to quickly prototype and test their ideas, and then deploy them in production without the need to translate the code to a lower-level language. **JuliaSim Control** extends the functionality of the JuliaControl ecosystem in several ways, providing users with a comprehensive suite of tools for the analysis and design of linear and nonlinear control systems.



JuliaSim Control builds on ModelingToolkit.jl, a symbolic, acausal modeling framework that allows users to model component-based physical systems. This makes it easy to build detailed plant models out of reusable components. Under the surface, ModelingToolkit uses DifferentialEquations.jl to solve ODEs and DAEs, providing users with a powerful tool for modeling and simulation.

JuliaSim Control is a powerful software that provides users with a comprehensive suite of tools for the design, simulation, analysis, and optimization of control systems. Its easy-to-use interface and extensive functionality make it an ideal choice for engineers, scientists, and researchers who are looking to develop and implement advanced control systems.



Model Predictive Control



Model Reduction GUI



PID Autotuning GUI



Robust Control

- Model-predictive control (MPC) for linear and nonlinear systems
- Robust MPC for uncertain systems
- Surrogatization of MPC controllers for reduced computational complexity
- State estimation for nonlinear DAE-systems
- Optimal control and trajectory optimization
- PID autotuning to automate workflows and quickly tune PID controllers
- Automatic tuning of controller parameters to meet design criteria
- GUI apps for autotuning and model reduction