2025-11-01

E015: Architectural Standards and Patterns

DIP-SMC-PSO Educational Series

January 25, 2026

Overview

This episode covers architectural standards and patterns from the DIP-SMC-PSO project.

Part: Part3 Advanced

Duration: 15-20 minutes

Source: Comprehensive Presentation Materials

section0   Documentation Scale & Organization

Documentation Statistics:
    'docs/NAVIGATION.md' connects all 11 navigation systems
Persona-based entry points, "I Want To..." quick navigation

section0   Documentation Categories

Organized by Purpose & Audience:

Category	**Files**	**Audience**
Getting Started	12	Beginners
Tutorials	18	All levels
Theory & Algorithms	45	Advanced
API Reference	120	Developers
Research Workflows	28	Researchers
Development Guides	32	Contributors
System Architecture	15	Advanced developers
AI Workspace	171	Claude Code

API reference auto-generated from docstrings using Sphinx autodoc
Ensures documentation stays synchronized with code

section0   Navigation Philosophy

Three Entry Points for Different User Needs:
    - **Persona-Based Navigation**
    - "I'm a student learning control theory" - "I'm a researcher validating algorithms" - "I'm a developer contributing code" - "I'm an instructor teaching SMC"
    - **Intent-Based Navigation ("I Want To...")**
    - "I want to run my first simulation" - "I want to tune controller gains" - "I want to understand the theory" - "I want to add a new controller"
    - **Category-Based Navigation**
    - Browse by topic (Theory, Tutorials, API) - 43 category index files - Visual sitemaps for overview

Resources

- **Repository:** `https://github.com/theSadeQ/dip-smc-pso.git`

- **Documentation:** See `docs/` directory

- **Getting Started:** `docs/guides/getting-started.md`

Educational podcast episode generated from comprehensive presentation materials