

Agentic AI Design Verification Challenge 2026

Harnessing LLMs and AI Agents for Hardware Verification

The Agentic AI Design Verification Challenge 2026 is an open, global competition exploring how Large Language Models (LLMs) and agentic AI systems can transform hardware design verification. The challenge brings together participants from academia and industry to develop intelligent, automated approaches for verifying RTL designs. Participants will be provided with a set of hardware IPs, design specifications, and an evaluation framework. The goal is to build verification environments, primarily through testbench development, that thoroughly validate the functionality of these designs using AI-assisted workflows.

Competition Overview

- Dates: **March 30 – April 8, 2026**
- Results Announced: **ISQED 2026 (and online)**
- Format: Fully online, open to global participants
- Organizers: PilotCrew.AI, UC Davis, UC San Diego



What Participants Will Do

- Develop SystemVerilog testbenches for multiple hardware IPs
- Use LLMs, agents and agentic AI workflows to automate and improve verification
- Achieve high functional coverage and thorough validation
- Build structured, scalable, and high-quality verification environments
- Iterate using intelligent pipelines (multi-agent, RAG, planning, etc.)

Key Objectives

- Test reasoning and creative problem-solving
- Explore how AI can improve coverage closure and debugging
- Demonstrate effective integration of LLMs and agents in verification workflows
- Balance quantitative performance (coverage) with qualitative quality (testbench design)

Evaluation Criteria

- Quantitative: Functional coverage, coverage depth, robustness, regression consistency
- Qualitative: Methodology, AI integration, automation sophistication, engineering rigor

Who Should Participate

- Students, researchers, and industry professionals
- Background in design verification is helpful but not required
- Open to participants from hardware, AI/ML, and software domains

Registration: https://pilotcrew.ai/competition/agentic-ai-design-verification-challenge-2026_isqed

[Note: The competition starts on March 30th, but participants can register until April 6th]