• HCSS · ANNAPOLIS · 2026

Autonomous formal methods, at the speed of AI.

Joseph Kiniry on the HOARDE platform at the High Confidence Software and Systems Conference.

SWIPE →

THE GAP

Forty years of formal methods tools that work. Fewer than 5,000 practitioners worldwide.

AI now generates code at **agent speed**.
Verification still runs at **human speed**.

AUTONOMOUS FORMAL METHODS

AI agents apply formal specification and verification, under engineer guidance.

The human shifts from writing proofs to **setting requirements**, **reviewing output**, and **gating decisions**.

THE HOARDE PLATFORM

Specialized agents, one per discipline, along the NINJA refinement chain.

The right formal tools made accessible to them as **typed, auditable calls**.

WHY CRYPTO FIRST

We start with cryptography because the bar is high there for a reason.

A system that holds up under cryptographic scrutiny holds up downstream. The tools transfer cleanly **all the way down to silicon**.

TWO CASE STUDIES IN FLIGHT

CASE 01

A formally verified C=64.

A nostalgic but technically uncompromising demo. Cryptol model, Rust simulator that actually boots.

CASE 02

IKEv2.

A protocol that carries an enormous amount of secure traffic, and doesn't have a public, mechanized security proof.

WHAT THIS UNLOCKS

25×

DEVELOPER EFFICIENCY

Engineers learn formal methods **in flow**, on their own systems, and the open-source FM ecosystem lifts with them.

ON HCSS

HCSS is rare. Every conversation is substantive.

One of the few rooms where you can pitch a verified C=64 and a verified IKEv2 **in the same breath**. The audience tracks every detail.

We are honored to be a part of it.

Sigil Logic

AI-augmented rigorous engineering with formal methods.