



# ForgeMind™

## *Natural Language to Validated GPU Geospatial Pipelines*

ForgeMind™ is the natural-language control plane for ForgeGIS, Seaglass Foundry’s GPU-accelerated geospatial engine. It turns a spoken or typed request into a validated, executed geospatial pipeline — or, when a request cannot be honored correctly, into an explicit refusal rather than a confident guess. Built on a proprietary GIS Intent Compiler that confines the language model to understanding intent and hands everything that must be correct to deterministic machinery. The result is conversational geospatial analysis that does not fabricate.

### **Zero**

#### **confident-wrong results**

*across 79 conversations and 6,696 turns, June 2026 validation*

### **~25×**

#### **lower LLM cost**

*vs. an agent-loop baseline on the same workflows*

### **LLM**

#### **agnostic**

*Claude and OpenAI built in; no vendor lock-in*

#### **What it is**

ForgeMind sits between a human (or another agent) and the ForgeGIS compute engine. It decides what to run, binds the request to real data, dispatches the work, and narrates the result — turning informal language into a correct, reproducible operation. It speaks the Model Context Protocol natively in both directions.

#### **Why it matters**

A conventional agent lets a model author tool chains directly, so every wrong parameter and hallucinated step lands in production looking confident. ForgeMind refuses by construction: a request either compiles to a validated pipeline or is declined. That is what regulated and mission work requires.

#### **How it's built differently**

The language model classifies intent and extracts parameters only. Deterministic code owns pipeline structure, type-checking, and execution — so the same request yields the same pipeline every time, with no hallucinated params and no drift. Cheap work runs on a fast model tier; the costly tier is reserved for the hard step.

## WHO FORGEMIND IS FOR

### Operators and analysts who want answers, not query syntax

Ask for a geospatial product in plain language — a viewshed, a slope mask, a site-suitability search — and get a correct result without learning a desktop GIS or a query language. ForgeMind holds context across a conversation, so a subject can be established once and refined across turns.

### Teams exposing geospatial analysis to AI agents

ForgeMind can be exposed as a single MCP tool that a higher-level agent delegates an entire geospatial workflow to, with the same refusal-by-construction guarantee. It consumes MCP tools (ForgeGIS, a dataset catalog, a map client) and guards each behind a circuit breaker so one failing backend degrades gracefully.

### Programs that need correctness they can audit

Numerical results come from ForgeGIS, dispatched through the same implementations whether a human or an agent invokes them. ForgeMind does not police model output for hallucination — it makes hallucination structurally unable to reach execution by never letting the model author the pipeline.

## PROOF POINTS

# 97

*voice-routable capabilities exercised end to end in the validation campaign*

# ~94%

*compiler eval pass rate: operator intent to a validated, executable pipeline*

# 130+

*deterministic core capabilities reaching into the 239-operation ForgeGIS catalog*

**Built for ForgeGIS.** ForgeMind's value comes from the engine underneath it. ForgeGIS keeps its data plane GPU-resident across a multi-step pipeline, so a composed request — a viewshed, a slope mask, and a least-cost path in one breath — executes fast enough to feel conversational. A slower, process-per-step engine would expose the latency ForgeGIS eliminates.

**Honest by construction.** Coverage is expanded deliberately, capability by capability, as each is validated. ForgeMind advertises only what it can run correctly — never the full operation list speculatively. The same discipline that refuses an ambiguous request governs how the capability surface grows.

### Get the full Technical Brief

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A Technical Brief with the architecture, validation campaigns, and deployment guidance is available on request.