RexusAi

1. Elevator Pitch

RexusCore is a high-performance cognitive orchestration engine—essentially an 'Intelligence OS'—that bridges the gap between frontier AI reasoning and real-world execution. Unlike traditional AI agents that are confined to a browser or an API, RexusCore operates at the system level. It uses a multi-modal approach combining vision, custom hardware integration (KeyCatcher), and a model-agnostic 'Swapout Hub' to automate complex workflows in high-friction environments like secure VDIs or legacy systems where traditional software automation fails.

2. The Architectural Deep-Dive "How does it actually work?"

Perception (Multi-sensor Vision): "We use Vision-Language Models (VLMs) to interpret environments directly from pixels rather than DOM elements. This includes 'Mobile Sensor Tunneling' to feed live camera/spatial data into the runtime, bypassing physical or software security barriers."

Reasoning (The Model Swapout Hub): "The core is model-agnostic. It dynamically routes tasks between local LLMs (like Llama 3 via LM Studio) for privacy-sensitive data and frontier cloud models (Gemini/GPT-4o) for high-reasoning tasks. This optimizes for both cost and data sovereignty."

Execution (Hardware-Level HID): "We don't just use pyautogui; we leverage the KeyCatcher Bridge, which acts as a physical HID keyboard/mouse. This allows the AI to interact with locked-down devices, BIOS screens, or secure kiosks where software-level drivers are blocked."

Self-Evolution: "One of the most advanced features is Delegated Capability Synthesis. When the agent hits a capability gap, it can autonomously write, test, and register its own Python modules into the system's toolreg.json, effectively expanding its own 'Superpowers' in real-time."

3. Resume / Performance Bullet Points

System-Level Autonomy: Engineered a cognitive OS that orchestrates multi-modal agents across disparate environments using a declarative tool registration system.

Hardware-Software Synergy: Integrated ESP32-based HID hardware (KeyCatcher) with local AI models to enable autonomous interaction with secure/legacy systems (VDI/Physical Hardware).

Privacy-First AI: Implemented a dynamic routing system that prioritizes local-edge processing (Ollama/LM Studio) for PII, only delegating to cloud frontier models for non-sensitive, complex reasoning.

Autonomous Tool Synthesis: Developed a "Self-Repairing" capability where agents autonomously generate and register Python-based modules to solve new environmental challenges without human intervention.

End-to-End Automation: Built production-ready "Career Pipelines" that autonomously harvest job data and populate complex Workday forms using computer vision to navigate UI fields.

4. Key Keywords

Cognitive Orchestration: (Shows you understand high-level agent design).

Model-Agnostic: (Shows you aren't locked into one vendor).

Vision-to-Intent: (The cutting edge of RPA replacement).

HID (Human Interface Device) Emulation: (Explains the security bypass capability).

Edge/Local Execution: (Demonstrates cost and security awareness).