

Damien House

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Staff-level hands-on AI and platform engineer with 20+ years building and modernizing enterprise software, Drupal/DXP platforms, cloud delivery systems, and high-trust digital services. Applies that systems maturity directly to agentic AI engineering using Python, LangGraph, Temporal, Pydantic, LangFuse, RAG, MCP, tool calling, structured outputs, evaluation, and human-in-the-loop workflows. Combines active implementation depth with architecture judgment, reliability engineering, DevSecOps discipline, and deep experience across Drupal and Acquia-hosted enterprise platforms.

CORE COMPETENCIES

- **Agentic AI Engineering:** Design and build stateful agent workflows, tool-driven systems, multi-step reasoning flows, structured outputs, retrieval pipelines, human review paths, and durable execution patterns.
- **AI Reliability, Evaluation & Observability:** Apply tracing, prompt/version management, deterministic and inferential validation, LLM-as-judge evaluation, provenance, retries, checkpointing, and failure-recovery practices to improve trust in model-driven systems.
- **RAG, Context & Tool Architecture:** Design retrieval-backed workflows, context boundaries, context compaction strategies, MCP/tool interfaces, and structured grounding patterns for content-rich enterprise applications.
- **AI Platform & DXP Architecture:** Connect agentic AI capabilities to Drupal, enterprise CMS, APIs, content systems, identity boundaries, cloud infrastructure, and governed digital-experience workflows.
- **Cloud, DevSecOps & Engineering Quality:** Establish CI/CD, containerized environments, automated testing, dependency scanning, release controls, cloud deployment patterns, and production-readiness practices.
- **Staff-Level Technical Leadership:** Lead architecture and design discussions, review implementation approaches, mentor engineers through code and pairing, establish engineering standards, and communicate system design across engineering, product, and customer audiences.

TECHNICAL SKILLS

- **AI & Agent Engineering:** LangGraph, Temporal, Pydantic, LangFuse, LangChain, LlamaIndex, RAG, agentic workflows, multi-agent patterns, MCP, tool/function calling, structured outputs, context engineering, context compaction, LLM-as-judge, human-in-the-loop automation
- **Languages & Application Engineering:** Python, TypeScript/JavaScript, React, Next.js, Node.js, PHP, Drupal 7–11, HTML/CSS, SQL, REST, GraphQL
- **Models, Retrieval & Data:** OpenAI, Anthropic, embedding and retrieval strategies, Solr, Elasticsearch, PostgreSQL, MySQL, MariaDB, Redis, structured data flows, API-first architectures
- **Cloud & Platform Engineering:** Acquia Cloud, AWS, Azure, GCP, Docker, Kubernetes, Rancher, Terraform, Ansible, cloud migration, containerization
- **Engineering Reliability:** GitHub Actions, GitLab CI, CI/CD, automated testing, dependency scanning, code review, tracing, evaluation, prompt management, release management, technical documentation
- **Delivery & Collaboration:** Architecture reviews, technical design, implementation planning, Agile/Scrum, Jira, Confluence, Git/GitHub, stakeholder and customer architectural communication

PROFESSIONAL EXPERIENCE

Fractional CTO & Principal Architect – 109.studio (June 1996 – Present, Washington, DC / Remote)

Principal-led engineering and architecture practice spanning AI systems, enterprise content platforms, full-stack application architecture, DevSecOps, technical R&D, and prototype-to-production execution.

- **Agentic AI architecture and implementation:** Designed and built hands-on agentic workflows using Python, LangGraph, Temporal, Pydantic, LangChain, retrieval, tool calling, state transitions, and structured outputs, applying production-oriented patterns for controlled execution, failure handling, and reviewable outcomes.
- **Agent reliability and evaluation:** Built verification and human-review patterns combining deterministic checks, inferential evaluation, LLM-as-judge techniques, provenance, checkpointing, retries, failure recovery, and Drupal-backed review workflows to make model-generated outputs inspectable before consequential action.
- **AI observability and context engineering:** Applied LangFuse tracing, prompt/version management, evaluation practices, context engineering, and context-compaction techniques while examining how context, tools, state, verification, human review, and lifecycle concerns interact across agent implementations.
- **Retrieval-backed content automation:** Designed RAG and AI-assisted content workflows that expanded automated analysis from 50-page samples to a 6,000+ item content estate while preserving structured outputs, source provenance, and accountable human review.
- **Engineering quality and technical influence:** Standardized containerized environments, CI/CD, testing, dependency scanning, code-quality gates, and AI-assisted review practices; reduced PR review time by 20%, caught 15% to 30% more defects, reduced rework by 10% to 25%, and mentored engineers through architecture, implementation, and design tradeoffs.

Senior Technical Consultant – GXM Consulting (Aug 2022 – Apr 2025, Washington, DC / Remote)

U.S. Department of Commerce, International Trade Administration; trade.gov, a public-facing federal trade platform supporting approximately 2,200 staff across 100+ U.S. locations and 70+ international markets while serving U.S. exporters, international buyers, researchers, and other global trade stakeholders.

- **Acquia Cloud and platform modernization:** Architected migration from Azure-hosted delivery to Acquia Cloud, standardized Composer deployments and Docker/DDEV environments, reduced release risk, improved onboarding velocity, and strengthened operational consistency.
- **Enterprise Drupal engineering:** Engineered 24 custom modules across 61 content types, 338 fields, 72 views, and 294 templates, establishing maintainable application and content patterns for a complex enterprise Drupal platform.
- **Cross-functional architecture and delivery:** Partnered with product, UX, analytics, content, infrastructure, and government stakeholders to translate requirements into implementation decisions, system integrations, deployment practices, and maintainable platform changes.
- **Quality, accessibility, and operating standards:** Remediated implementation toward WCAG 2.2 AA and established environment and deployment SOPs that strengthened release confidence, testing readiness, onboarding, and long-term platform support.

Senior Technical Consultant – Innosoft Corporation (Jul 2021 – Jun 2022, Washington, DC / Remote)

U.S. Department of Commerce, National Telecommunications and Information Administration; sole technical lead for modernization of NTIA.gov, a federal public-information and grant-program platform supporting approximately 527 agency staff and serving state and local government administrators, researchers, telecommunications stakeholders, and the general public nationwide.

- **Technical lead – legacy application modernization:** Served as sole technical lead for the Drupal 7-to-9 modernization, directing the full code and infrastructure transition, rebuilding custom modules and responsive application components, extending QA/UAT, and delivering ahead of schedule with zero downtime.
- **Application and platform engineering:** Built responsive themes, custom application functionality, and D3.js visualizations while modernizing underlying architecture and preparing the platform for future PaaS hosting.
- **Reliability and stakeholder delivery:** Coordinated technical decisions, testing, accessibility validation, and launch readiness across agency stakeholders while maintaining Section 508/WCAG alignment and reducing migration risk.

Senior Technical Consultant – Focused Management, Inc. (May 2017 – Dec 2020, Washington, DC / Hybrid)

U.S. Department of Agriculture, Office of the CIO – Platform Services; enterprise modernization across 13 mission-critical public-sector sites with 24/7 operational requirements.

- **Enterprise platform modernization:** Designed and led modernization of 13 mission-critical sites from fragmented Windows/IIS/SQL Server infrastructure to Linux/Apache/MariaDB, reducing operational fragmentation and creating a maintainable shared-services foundation.
- **Containerization and delivery engineering:** Introduced the organization's first production containerized environment using Docker and Rancher-orchestrated CI/CD, reducing environment drift and improving deployment consistency across platform teams.
- **Identity, reliability, and operations:** Implemented USDA eAuth SSO, reduced credential fragmentation, supported 24/7 production operations, strengthened authentication and deployment practices, and delivered the modernization three months ahead of schedule.
- **Engineering standards:** Established reusable deployment patterns, operational documentation, and platform practices that improved maintainability and reduced future implementation risk.

Senior Technical Consultant – Blackstone Technology Group (Nov 2013 – Dec 2016, Arlington, VA / Hybrid)

U.S. Department of Agriculture, Food and Nutrition Service and Agricultural Marketing Service; lead engineer and Drupal SME supporting production operations, platform modernization, secure integrations, and client-driven delivery across major public-facing federal websites.

- **FNS operations, maintenance, and engineering:** Supported fns.usda.gov through approximately 18 months of production O&M, partnering with USDA stakeholders to resolve operational issues, identify enhancement opportunities, translate business needs into scoped engineering work, and maintain continuity for a mission-critical platform.
- **AMS application build and launch:** Led development of the ams.usda.gov Drupal platform through approximately one year of architecture, implementation, testing, stakeholder review, and production launch.
- **Application architecture and secure integration:** Designed and implemented Market News data flows and PIV authentication, establishing reusable patterns for content, identity, and deployment that reduced implementation risk.
- **Post-launch reliability:** Continued technical leadership for approximately one year after launch, managing production issues, enhancements, release support, and stakeholder-driven improvements while strengthening maintainability and operational confidence.
- **Engineering leadership:** Coached a cross-functional Agile team through architecture and implementation decisions, increasing sprint velocity by 67% from 18 to 30+ story points during critical phases while maintaining quality and stakeholder acceptance expectations; consistently received "Exceeds Expectations" evaluations.

EDUCATION

- **Morgan State University** – Electrical Engineering, 1997–1999
- **Baltimore Polytechnic Institute** – STEM / Advanced College Prep, 1993–1997