

Bryan Davis

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Principal Software Engineer specializing in distributed systems, platform architecture, information retrieval, and production ML. I've spent the last decade building high-scale infrastructure and reusable platforms across search, recommendations, data, and developer tooling.

SKILLS

- Distributed Systems and Platform Architecture
- ML Systems and Applied AI
- Data Engineering
- Cloud Engineering
- Information Retrieval
- Technical Leadership

EXPERIENCE

Home Depot – Principal Software Engineer, Core Platform

FEB 2026 – PRESENT

- Established architecture, ownership boundaries, and operating model for newly created platform org across 10 teams
- Designed five-year service modernization roadmap for newly created org

Home Depot – Principal Software Engineer, Search/Recommendations

APR 2021 – FEB 2026

- Redesigned search platform into modular ML-driven retrieval and ranking platform
- Built system for internal search integration with external partners with intelligent routing layer
- Reduced recommendations platform services by 60%
- Reduced overall cloud costs for search and recommendations by 20%
- Designed and implemented a feature store to serve batch and real-time calculated features supporting 300+ features
- Expanded recommendation product catalog to include modern modeling approaches
- Built real-time inference into retrieval and ranking stages of the recommendation platform in a configuration-first approach
- Redesigned front-end experimentation for recommendations to support more and quicker A/B testing

Home Depot – Staff Software Engineer, Tail Search

OCT 2020 – APR 2021

- Introduced a KNN query-rewriting system to improve tail-search performance
- Migrated the platform's API layer from REST to GraphQL
- Reduced data science friction by building an offline relevancy service
- Designed and implemented a new Bing search integration

Home Depot – *Senior Software Engineer, Data Platform*

APR 2017 – OCT 2020

- Team lead of 17-engineer platform team (7 onsite, 10 offshore)
- Built search-as-a-service internally, onboarding two new product teams to searchable/filterable catalogs
- Maintained a 15-minute real-time data indexing SLO across 2,500+ stores and 4+ million products
- Scaled self-hosted Solr 6x while maintaining 200ms SLO across 33M queries per day

Home Depot – *Contractor, Automation Engineering*

OCT 2016 – APR 2017

- Built automated validation and smoke testing service used as a blue/green deployment gate
- Built cloud-native tooling for data comparison between legacy and new platforms
- Automated previously-manual front- and back-end test coverage across the search platform

Interactive Communications – *Software Engineer, Back Office*

OCT 2012 – FEB 2016

- Segmented core transactional database used by the transaction processing service
- Rewrote the legacy pricing and billing application for back-office processing
- Implemented devops practices for the team

NOTABLE PROJECTS

Agentic Modernization Pipeline –

Build an agentic pipeline which upgrades Java services through current LTS and framework versions. Follows an orchestrator/worker pattern, minimizes context usage, maintains a ledger, and includes quality gates to maximize quality and reduce errors. Reduced upgrade time from weeks to a single day.

Feature Store Implementation –

Implemented a feature store for the Search and Recommendation platform on top of GKE to provide a configuration-first platform for both serving batch features and computing real-time features at low latency. Serves 300+ features in less than 60ms 95th percentile.

Small Language Model for Ranking –

Built a low-latency language model reranker to personalize results across recommendation models without needing separate rankers per task. Used prompting techniques, ML Engineering techniques, and latest inference servers to achieve a 60ms 95th percentile latency on a 4B parameter model.

Hybrid Search Migration –

Rebuilt the search platform to move from a legacy lexical system to a lexical/semantic hybrid with real-time reranking and behavioral boosting. Moved from Solr to managed Elastic while training and integrating multiple ML models across retrieval and ranking.

See full list of projects and details at <https://bryanadavis.com/resume>