

## SUMMARY

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Principal Engineer specializing in AI/ML architecture, data engineering, and full-stack enterprise development. Architects intelligent systems, multi-agent platforms, and high-volume pipelines processing hundreds of millions of daily transactions. Brings broad, hands-on expertise across Java/Spring Boot, Python, JavaScript/TypeScript, SQL, cloud-native AWS/GCP/Azure, Kubernetes, LLMs, and modern ML — applied across fintech, banking, insurance, healthcare, tax technology, and government/regulated domains. Holds four patent-pending AI inventions and delivers measurable impact, including millions in cost savings and fraud prevention.

## SKILLS

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### Languages

Java/J2EE, Python, JavaScript/TypeScript, SQL, C#/.NET, COBOL

### AI & ML

LLMs, MCP, LangChain, Langfuse, crewAI, AutoGen, XGBoost, scikit-learn, PyTorch, NLP, Synthetic Data Generation, GitHub Copilot, AWS SageMaker, Snowflake Cortex, Azure AI, Streamlit

### Frameworks & UI

Spring Boot, FastAPI, Hibernate, Node.js, React, Vue.js, Angular, REST APIs, Microservices, Kafka, Figma (design-to-code)

### Cloud & Data

AWS (EC2, S3, Lambda, RDS, DynamoDB, Kinesis), Azure, GCP, Snowflake, PostgreSQL, Oracle/SQLPlus, MongoDB, Redis, Spark

### DevOps & Platform

Kubernetes, Docker, Terraform, Jenkins, ArgoCD, GitHub Actions, Datadog, WebLogic, Puppet, Linux, CI/CD, Agile/SAFe

## PROFESSIONAL EXPERIENCE

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### Vertex Inc

King of Prussia, PA

#### Principal Software Engineer

May 2022 – May 2026

- Led AI research and architecture for the Data & Insights value stream supporting 50+ engineers across Indirect Tax Intelligence and Indirect Tax Close products, building backend services in Java/Spring Boot and Python/FastAPI backed by PostgreSQL and DynamoDB for scale on AWS, driving Fortune 500 compliance for retailers, restaurants, and payment processors at enterprise scale.
- Architected real-time tax calculation pipelines in Spring Boot and Python on AWS Lambda (serverless), using SQS to absorb volume beyond Lambda concurrency limits with disaster-recovery failover to the US West region, processing 50M–100M daily transactions from major national retail and restaurant chains via SAP, MS Dynamics, and Vertex OSeries integrations, holding sub-100ms p99 latency under Black Friday peaks.
- Created Robby, multi-agent SDLC platform spanning 70 skills and 15 roles, integrating Node.js MCP servers with ArgoCD, GitHub Actions, and Datadog through Vue.js Copilot Chat UI, automating spec generation, code review, and sprint planning across engineering value streams.
- Delivered C#/.NET engineering on Vertex Compliance & Returns product with React frontend and Node.js services, supporting period-end tax filing and remittance workflows for enterprise customers within the broader O Series ecosystem.
- Championed surgical engineering team overhauling observability metrics system and reclaiming abandoned customer data and idle cloud resources via Snowflake archive pipelines, saving approximately \$1M annually in operating costs.
- Designed and taught “Raise the Boats” AI Curiosity Workshop to ~50 engineers covering LLM fundamentals, MCP integration, and agent development patterns, accelerating organization-wide AI adoption.
- Inventor on four patent-pending AI systems spanning synthetic data generation, audit-defense decision support, code-quality intelligence, and multi-state economic-nexus detection. (Inventive details remain confidential while the applications are pending.)

### JP Morgan Chase

Wilmington, DE

#### Senior Software Engineer

Apr 2021 – May 2022

- Senior engineer on Auto Origination data initiative leading sourcing strategy and AWS architecture migration (Project “Photon”) for Chief Data Office, building Angular dashboards and Node.js services on AWS S3, Lambda, and RDS across origination and servicing domains with the Road Rager team.
- Led migration of legacy Auto data sources into single-source-of-truth AWS architecture, establishing data contracts and integration patterns adopted across 6+ downstream consumer systems and reducing duplication of customer and loan data assets.
- Established CDO data governance standards including schema definitions, ownership models, and SLA contracts adopted across origination and servicing domains, enabling cleaner downstream analytics and faster regulatory reporting cycles.

**Connect Your Care (acquired by Optum Financial)**  
**Senior Software Engineer**

Hunt Valley, MD  
May 2019 – Apr 2021

- Senior engineer owning HRCommand flagship product, leading 5+ member team rewriting monolithic EJB/J2EE platform into Spring Boot microservices with React frontend on WebLogic/Puppet, positioned as the strategic asset driving United Health/Optum Financial acquisition.
- Architected systematic decomposition of legacy EJB/J2EE monolith into Spring Boot microservices, defining service boundaries, data ownership, and migration sequence enabling incremental cutover without business disruption to enterprise HR customers.
- Led 5+ engineer team rebuilding HRCommand UI in React/JavaScript/CSS with Figma-to-code component delivery, establishing component library and code review standards adopted across the consumer-facing product line.
- Established domain decomposition playbook and drove technical decisions accelerating delivery enough to make HRCommand the centerpiece of Optum acquisition due diligence.

**Donegal Insurance Group**  
**Senior Java/Guidewire Developer (Configuration Lead)**

Marietta, PA  
Feb 2019 – May 2019

- Senior Java/Guidewire developer on multi-year Policy and Claims Guidewire conversion program, aligning development, QA, and business stakeholders using SAFe agile across 3+ delivery squads in regulated insurance environment.
- Promoted to Configuration Lead within first quarter, coordinating Java/Guidewire delivery and establishing acceptance criteria templates adopted by program-level QA, accelerating story sign-off across the conversion roadmap.

**TekSystems (JP Morgan Chase)**  
**Infrastructure Developer — Advanced**

Wilmington, DE  
Feb 2018 – Feb 2019

- Developed Voice Biometric fingerprinting service (Python, ML) for fraud detection contributing to a ~\$830B plateau in fraud losses prevented across JPMC consumer banking.
- Onboarded 10 million unique JPMC accounts in the first three months (with only 1,300 opt-outs); pilot reduced call throughput by 20 seconds, enabling 25 additional customers per representative per day.
- Part of TARA Fraud Busters group developing JPMC CAT tool: aggregated RESTful APIs into unified Angular dashboard with Sapiens rules engine for real-time fraud detection.

## PRIOR EXPERIENCE

**Financial Management Solutions**, Pasadena, MD (Apr 2012 – Feb 2018) — Lead Software Developer. REST Spring Boot/Hibernate service over IBM AS/400 (IBM i) COBOL; led FMS Labor Saver in-house transition saving \$100K+/year; AWS Lead for FMS Marketing.

**Travelers Insurance**, Hunt Valley, MD (2010 – 2012) — Lead Software Developer. Resolved 200+ issues on Blue Ribbon agent product, finishing a year estimate in six months.

**R2Integrated**, Baltimore, MD (2008 – 2010) — Software Developer. Redesigned Forbes.com Video Network and Embedded Player (Java, J2EE); migrated AAA, Honda, Sirius XM, Pepsi/Quaker.

**G1440**, Baltimore, MD (2005 – 2008) — Software Developer. Sales1440 homebuilding CRM platform (Java, J2EE, Jenkins, JDTS, SQLPlus).

## PATENTS PENDING

**Data Cake** — Synthetic tax-data generation enabling safe model training without PII exposure. (Method confidential while pending.)

**Audit Management** — AI decision support for audit defense, prioritizing cases by expected return. (Method confidential while pending.)

**Doc Intel** — AI that flags when source code and its documentation fall out of sync across large enterprise codebases. (Method confidential while pending.)

**Mort AI Nexus** — Predictive detection of multi-state economic sales-tax nexus before exposure occurs. (Method confidential while pending.)

## EDUCATION & CERTIFICATIONS

**University of Maryland Baltimore County (UMBC)** — B.S. Computer Science 2001 – 2005  
AWS Certified Solutions Architect 2018  
Generative AI Foundations — AWS Re:Invent Bootcamp 2022

## PASSION PROJECTS & COMMUNITY

- **Fantasy Baseball ML Engine** — Built ensemble ML system with 93+ tests, real-time data pipelines, and Streamlit UI for player projection and lineup optimization ([github.com/ethos71/fantasy-baseball-ai](https://github.com/ethos71/fantasy-baseball-ai)).
- **Volunteer Coach, Challenger Sports** — Coach in an adaptive baseball program for children with special needs; mentor volunteer staff on inclusive practice.