Thom Ives, Ph.D.

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AI Applications Architect and Multi-Physics Engineer — 40+ years turning complex physical, business, and data systems into predictive models and production AI. Currently technical lead and architect of Unify Consulting's AI product line: agentic applications grounded in live CRM data, carried from concept through governance review to production readiness on Azure. A rare combination of **production agentic AI** (multi-agent systems, MCP), **verification-first engineering**, and deep engineering roots — Ph.D. in Mechanical Engineering, **26 U.S. patents**, and 16 years of multi-physics R&D at HP — with operator-side fluency in sales, finance, and real estate.

MAJOR SKILLS

Full-Stack AI Apps Agentic AI Systems Multi-Physics Modeling Imaging Analysis	**AI & Data Science AI Governance Auto Data Collection Design Facilitator**	**Machine Learning Interactive Web Sites Control System Design Research & Development**	**MLOps, CI / CD Verification & Testing System Design Business Acumen**

MANY OF MY DATA, MODELING, AND CODING SKILLS

Python (26+ Yrs) FastAPI & Streamlit React, Next.js & TypeScript MS SQL Server	**Pandas AI-Accelerated Coding Linux Cloud (Azure, AWS, GCP)**	**SciPy & NumPy MCP & LLM APIs Playwright E2E Testing Terraform & GitHub Actions**	**PySpark & Microsoft Fabric Git & GitHub Docker PyTorch & TensorFlow**

VENTURES & LEADERSHIP

Founder and Owner at PostalDataPI, From 1/2025 to Present Location: Eagle, Idaho

- Built and operate a global postal-code validation and enrichment API serving **246 countries + territories** (1M+ postal codes) with sub-5ms response
- Designed a **transparent, single-tier pricing model** at $0.000028 per query — data-infrastructure-as-a-service with attention to pricing mechanics, API economics, and compliant data provenance (GeoNames CC BY 4.0, OpenStreetMap ODbL)
- Shipped **first-party SDKs** (Python, Node, MCP) plus OpenAPI 3.0 and llms.txt — built **agent-native from day one** for direct AI-agent consumption rather than retrofitted
- **Stack:** self-hosted Node 22 / Next.js 15 API surface with in-memory cache, Vercel for marketing site / account dashboard / OAuth / Stripe webhooks, Neon PostgreSQL with Drizzle ORM, NextAuth, Stripe billing, TypeScript strict; full-stack ownership from architecture through release

Webmaster and Technical Consultant at Fungaia Coffee Company, From 12/2025 to Present Location: Eagle, Idaho

- Technical lead for a functional-mushroom coffee and cacao D2C brand based in Boise, Idaho, reaching customers through Idaho farmers markets and national direct-to-consumer e-commerce
- Built and maintain the **Next.js e-commerce stack on Vercel** — integrating Square (payments, orders, inventory), Shippo (real-time shipping rates), Resend (transactional email), and Printful (print-on-demand merch)
- Built an admin surface that lets founder Austin Longworth run promotions, publish content, and manage inventory without engineering involvement, plus an automated content pipeline
- Ongoing per-task engagement covering site maintenance, dependency management, feature work, and admin support; advise on unit economics and channel strategy beyond the technology function

Founder at Integrated Machine Learning & AI, From 8/2018 to 8/2022 Location: Eagle, Idaho

- **Worldwide Mentoring** grown from 65K+ LinkedIn followers:
- Technical and mentoring **blog posts** that address the data science community's needs
- Bi-weekly tech chats where I **help data scientists** work through detailed technical questions
- Frequently asked to **keynote speak** and present on data science topics to aid community growth
- **Reviewed ML books** for Packt
- Continuing to mentor in the data science community on a smaller scale, with primary focus shifted to consulting and PostalDataPI

EXPERIENCE

Senior AI Consultant at Unify Consulting, From 12/2024 to Present Location: Remote

Current arc (From 7/2026 to Present): Acting Senior AI App Developer — Technical Lead and Architect of Unify's AI Product Line

- Architected and built an **AI-powered operating platform for B2B sellers** that reads live CRM data to surface deal health, pipeline risk, meeting preparation, and AI-generated account research; carried it from prototype through internal beta to **production readiness behind corporate single sign-on**, with promotion to production underway (November 2026)
- Designed the platform's AI layer as **specialist agents with tool access**, grounded in Salesforce CRM through the **Model Context Protocol (MCP)**, with per-user spend limits and no AI credentials stored in the application
- Wrote an **AI governance framework** that maps each guardrail to the test, log, or configuration that proves it, and used it to carry the product through leadership's governance review
- Partnered with the corporate cloud platform team on the application's path through **development, test, and production on Azure** — infrastructure as code (Terraform), managed identities, secrets in Key Vault, and least-privilege access
- Built a **business-development suite** (relationship network map, AI-written company briefs, warm-introduction workflow, outreach tracking) and an **interactive AI-enablement course** that takes professionals from a single model call through workflows and agents to a capstone, with a live AI coach
- Unified four separately built applications under **one design system and one launcher**, with light and dark themes and phone layouts, measured to **WCAG 2.2 AA** accessibility
- **Verification-first engineering:** an environment-aware test framework that knows whether it is pointed at development, test, or production and limits itself accordingly (read-only, no customer data in production); **several thousand automated tests**, including end-to-end browser journeys and hourly security checks; and walkthroughs of each product as its real users would use it, on realistic data
- Lead delivery as an architect **directing AI coding agents** working in parallel, with written plans, review gates, change control, and an audit trail — turning executive product vision and early mockups into secure, live applications in days rather than months
- Throughline: Unify's own thesis — **build AI products, prove them on ourselves, then sell them**

Prior arc — Microsoft Assignment (ABM AI Team), From 11/2025 to 6/2026:

- Partnered with the Microsoft ABM AI team on the **analytics layer** for Microsoft's account-based seller recommendation engine
- Built and maintained a **curated knowledge base** of analytical artifacts — Spark/PySpark notebooks against the team's recommendation-outcomes Delta lakehouse table, recurring data snapshots, and business framework references — that compounded value across sprints rather than being rebuilt each cycle
- Delivered a self-contained **Microsoft Fabric reporting tool** that classifies free-text seller dispositions against a canonical taxonomy using **Fabric AI Functions (gpt-4.1-mini)** over millions of rows of activity
- Developed and documented a **local-first** / **Fabric-validated working pattern** — prototype against local Parquet snapshots, ship validated artifacts back to Fabric for stakeholder review — keeping iteration speed high without sacrificing production rigor
- Stack: Python (pandas, PySpark, Delta), Microsoft Fabric (lakehouses, AI Functions, notebook resources), Azure DevOps, semantic classification with LLMs

Amazon Assignment, From 8/2025 to 10/2025:

- Built a POC **AI Airline Contracts Processor** to collect financial data from 100s of unstructured contracts using LLM-based auto-processing
- Built an **AI chatbot** doing SQL queries on Amazon travel expense data using natural language in and out

Senior Data Scientist at Echo Global Logistics, From 5/2022 to 10/2024 Location: Remote

- Built two full-stack LLM-based Outlook automations for sales-rep email workflows; per-request handling compressed from 5+ minutes to under 15 seconds across 30,000+ daily requests.
- Delivered numerous production models and mentored the data science team into modern serving patterns (containerized APIs and web add-ins).

- Built a carrier-cost optimization tool delivering double-digit margin recovery for sales operations.

Lead Data Scientist at AI-Strategy, From 11/2021 to 5/2022 Location: Remote

- Developed AI Agents to assist humans in a process to increase success in new technology development:
- Assisted in requirements creation for overall AI architecture
- The AI Agents used a combination of Deep Learning Transformers and General Automation
- AI training data was acquired from past successful projects and projects developed in the application
- Developed APIs to handle Data File IO and SQL IO and to serve the AI Agents

Lead Data Scientist at UL Prospector, From 7/2019 to 10/2021 Location: Remote

- Worked on an **AI architecture** to rapidly process unstructured plastics technical data sheets:
- Followed TOGAF principles during development to align with enterprise objectives
- Programmed a fast **document match math machine** that grows real time
- Created **tokenizers** that rapidly found property elements in unstructured technical data sheets
- Developed a **heterogeneous clustering algorithm** that rapidly grouped property elements
- Built a **property names finder** from two **lookup engines** and **GloVe** trained on specific data
- Devised several **dynamic web scrapers** using Py-Selenium to automatically collect data
- **Started a data science community** to share learning and mentor others in data science

Test Algorithm Development Engineer at ON Semi, From 2/2015 to 7/2018 Location: Meridian, ID

- Used data science and **python** to automate testing of imaging die on wafers
- **Mentored** new engineers on **how to automate** their work with Python for image test code
- Developed **machine learning** to **automatically find image defects** to replace a lengthy manual training and worked with architect to ensure code aligned with enterprise objectives and goals
- Updated, maintained, and troubleshot test algorithms, and applied them to new products
- Released updates to code on a 3 week cycle, and ran and updated a pre release code test program

R&D Engineer at Hewlett Packard, 3/1998 to 10/2014 Location: Boise, Idaho

- Named inventor on **26 U.S. Patents** across electromechanical devices, MEMS, color imaging, laser cartridges, and disk arrays
- **Color Imaging:** Created python based data science tools to adjust halftones across different printers / scanners. Ran psychometrics. Mentored and assisted 3 PhD graduate students in data science methods.
- **Laser Cartridges:** Developed statistical machine learning models for cartridge wear, automated data collection on laser cartridges in test to more rapidly ID problems; guided graduate students in modeling of toner dynamics for design improvements, served on their committees, and tested new cartridge designs.
- **R&D of Micro-Electro-Mechanical Systems (MEMS):** Coded simulations of mechanics, electrostatic motors and sensors, charged particle optical focused-emitters, and thermal performance using FEM, BEM, and lumped parameter modeling techniques for MEMS R&D. Specified and designed parts for, updated parts for, and constructed an R&D vacuum test system for doing laser-doppler-vibrometer dynamics studies using LabView for imaging and vision capture systems for MEMS testing; Used python to coordinate several computers to reduce cycle time in finding optimal solutions; Coded physical model simulations with python to control 3D surface animations to better characterize MEMS performance.
- **Leadership in Training:** Originated site wide technical training to preserve knowledge through videos.
- **Parts Design:** Fast robust design and manufacture of parts using design methodology and FEA.
- **Disk Arrays:** Continuing product engineer on RAID storage systems and mechanical design engineer.

FINANCE-ADJACENT CREDENTIALS

Operator-level experience in finance-adjacent roles, complementing the data-science and R&D profile above:

- **Series 6 and Series 63** securities licenses
- **Certified Life Underwriter**
- Top-producing sales of **life, auto, and home insurance**
- Active **real estate investor** — owned and self-managed a 16-plex plus additional family homes over several years
- **Licensed Realtor** supporting the real estate investment practice

- **Quantitative financial modeling** recognized by peers: investment-planning spreadsheets circulated by associates as exemplars for others; a loan officer once approved a real estate loan without pulling a credit report after reviewing a personal financial statement

ADDITIONAL EXPERIENCE

Manager of Advanced Products at SCP Global Tech, Boise, Idaho, From 7/1997 to 2/1998. Led team in the use of better and faster design methods to develop a processing tool for semiconductor and microchip fabrication facilities. **Manager of Reactor Operations** at Texas A&M University Nuclear Science Center, College Station, TX, From 7/1989 to 7/1991. Managed the operations of a University Research Reactor, improved training and public tours, and designed and built support systems and oversaw experiments. **Naval Nuclear Program Engineer** at Westinghouse Electric Corp, US Naval Nuclear Program, Idaho Falls Idaho (INEL) From 6/1986 to 6/1989. Led naval personnel through operations, training and maintenance of a dual reactor nuclear power plant. Held a DOD secret security clearance. **Visiting Professor** at University of Idaho, Boise, Idaho, 8/2004 to 12/2004. Co-Taught Design Of Experiments. **Adjunct Professor** at Boise State University, Boise, Idaho, 8/1998 to 5/2002 — Taught Control Systems Design.

EDUCATION

Doctorate of Philosophy (Ph.D.), Texas A&M University, College Station, TX, Graduated 9/1993 to 8/1997, Research "Methodologies for the Design and Modeling of Hybrid Vehicle Power Plants", "Neural Network Application" **Master of Science (M.S.)**, Texas A&M University, College Station, TX, Graduated 9/1991 to 5/1995, Research: "Robot Calibration and Computer Image Controlled Robotics" **Bachelor of Science (B.S.)**, The University of Texas, Austin, TX, Graduated 9/1980 to 12/1984, Research: "Wind Turbine Modeling", "Icing Rate Detector"

REFERENCES

References available upon request.