

Barry Adams

IT · CAD · Applied AI Engineer

Florida, United States | [LinkedIn](#) | [Portfolio Website](#)

SUMMARY

Hands-on AI systems builder with production experience in LLM agent architecture, RAG-backed retrieval, and MCP tool servers. Background spans SQL Server BI infrastructure, ERP data integration, endpoint security, and operating a side mechanical CAD consultancy. Strong at bridging industrial software, business and AI tooling while keeping data access secure, controlled and operationally useful.

CORE SKILLS

LLM Agents · MCP Servers · RAG Architecture · Local LLMs · Python · FastAPI · Flask · .NET / C# · ASP.NET / Blazor · SQL Server · Docker · LangChain · HuggingFace · FAISS · PyTorch · scikit-learn · Pandas / NumPy · CadQuery · React / TypeScript · PowerShell · Pydantic · Rust

NOTABLE PROJECTS

CAD Automation — MCP Servers

MCP · LLM Agents · RAG · Python · .NET

- Built AI assistants driving CAD platforms (AutoCAD, SolidWorks, CadQuery, HiCAD) via natural language using local LLMs (Qwen3) and custom MCP servers exposing 17+ tools.
- Designed RAG knowledge systems (200+ API documents) with domain-specific CAD semantics; maintained 128+ unit tests (~79% coverage) and Python/.NET interop with named-pipe health checks.

Parametric CAD Model Viewers

wxPython · CadQuery · Three.js · Desktop App

- Architected 4-layer "Calculate Once" desktop apps separating algorithm, 3D geometry (CadQuery), visualization (Three.js), and UI; IBC building code validation with compliance recommendations.
- Delivered domain-locked standalone installers (Inno Setup) with embedded Python runtimes and network deployment for corporate CAD environments.

Company BI, CRM & Agentic Copilot

SQL Server · FastAPI · Docker · RAG · Tool Calling

- Mapped ERP - to - Business Intelligence data flows; built various API operational dashboards and executive intelligence tools in alternative environments mirroring production SQL Server topology.
- Designed a governed LLM intelligence layer: intent classification, rights-aware retrieval, typed read-only data contracts, output critique, citation scoring, and full audit tracing.

EXPERIENCE

Mullets Aluminum Products, INC CAD, AI Engineering & Systems Architect

2016 – Present

Manufacturing Operations

- Designing local LLM agents, MCP integrations, and RAG knowledge systems for manufacturing intelligence.
- Building various API dashboards and SQL Server BI architecture for executive reporting and operational insight.
- Mapped ERP - to - BI data flows, rebuilt payroll/401(k) audit automation tooling.
- Endpoint security investigations via PowerShell and RMM telemetry; produced executive findings reports.
- Project measurement and aluminum fabrication from 2016 - 2023

Founder & Principal Engineer

2023 – Present

CADcoLabs — Solo Mechanical CAD Consultancy

- Fabrication-ready aluminum structures: 3D models, shop drawings, BOMs, CNC files, and IBC/FBC submittals.
- Built parametric CAD viewers; managed full client lifecycle from consultation to delivery.

Cahoun County Road Department & various

2001 – 2016

IT Director — Project Management, various handyman roles

- IT Director for CCCD – county parks, engineering, planning, road department, solid waste 2001 - 2014.
- Various skilled labor roles while transitioning from Calhoun county, MI to Sarasota, FL