

Joseph DeMasse

AI / ML ENGINEER

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I build the software people assume needs a whole team — **alone, and in production**. Real-time AI voice agents that make outbound calls on their own, retrieval systems that answer regulatory questions with citations and refuse to answer without them, and the Salesforce and AWS platform underneath. I came up inside the mortgage industry, so I build compliance in from the regulation outward — TCPA, DNC, FCRA, ECOA / Reg-B — rather than bolting it on afterwards.

Availability — I'm extremely happy where I am and not looking to leave, but I am **100% open to contract work**. Happy to talk about anything AI, platform or integration shaped.

EXPERIENCE

Chief Executive Officer / President

October 2025 - Present

AquaBots Inc. · Shelby, Michigan

Water-technology company building AI-powered, solar-driven filtration robots that detect, purify and preserve water sources in industrial and humanitarian settings.

- Autonomous water filtration and purification systems.
- IoT and AI-driven water-quality analytics, with onboard sensors adapting in real time.
- Solar-powered, energy-efficient design for municipal, industrial and humanitarian use.

Vice Chairman of the Board of Directors

October 2025 - Present

AquaAid Foundation · Michigan

Nonprofit humanitarian NGO delivering clean, safe and sustainable water to communities in need — pairing filtration technology with community-led programs.

- Deployment of AI-enhanced filtration and solar-powered purification in the field.
- Disaster relief and emergency water aid.
- Partnerships with engineers, environmental scientists, nonprofits and local leaders.

AI / ML Engineer

June 2025 - Present

Ur Mortgage · Troy, Michigan

I design and ship production AI/ML systems that move real revenue in mortgage lending, with compliance built in (TCPA, DNC, FCRA, ECOA / Reg-B) — because in this industry “smart” isn’t enough, it has to be defensible.

- Built an internal AI “brain” platform: retrieval-augmented generation over a vector store spanning mortgage, sales and engineering domains, with a compliance firewall that abstains rather than hallucinates and self-train/test loops that measurably lift accuracy.
- Built an AI underwriting assistant that maps real loan data to a structured file, cites specific guideline thresholds, and produces findings memos as decision support — abstaining when a claim can’t be cited.
- Built a real-time AI voice dialer on Twilio and OpenAI Realtime, re-architected to a pre-generated playbook plus an embedding-based intent router, with a Whisper call-study pipeline that learns technique from real recordings.
- Enforced compliance gating end to end: do-not-call, calling-hour windows, state licensing and consent, all cleared before a call connects.
- Built ML and data pipelines: local OCR ingestion of scanned guidelines with no data egress, lead-scoring models, and an autoencoder plus K-Means anomaly-detection security layer.
- Worked the full stack — vector search and LLM orchestration on the AI side; Salesforce (Apex, LWC, multi-org lender integrations) and AWS serverless (Lambda, API Gateway, DynamoDB, Amplify) on the platform side; React, Next.js and Three.js on the front end.
- Engineered for reliability: idempotency, race-condition handling, deferred-retry queues and replay tooling.

Full Stack Developer

June 2025 - Present

Ur Mortgage · Troy, Michigan

Platform and integration work alongside the AI engineering role.

- Salesforce setup and administration.
- Experian cloud and CRM integration.
- Web application development.

EARLIER ROLES

Mortgage Loan Officer — Ur Mortgage, Troy, Michigan

June 2025 - Present

Salesforce Administrator — NEXA Mortgage, Troy, Michigan

June 2025 - Present

Loan Officer — NEXA Mortgage, Troy, Michigan	June 2025 - Present
Mortgage Loan Officer — Lend-A-Loan LLC, Michigan	January 2025 - June 2025
Artificial Intelligence Engineer — RadicalX, Remote	May 2023 - October 2023
Marketing Associate — Innovative Client Connections, Inc., Southfield, Michigan	July 2023 - November 2023
Web Developer — Mother Earth Natural Health, United States	May 2023 - June 2023
Full Stack Engineer — Freelance, Michigan	November 2018 - October 2023
Licensed Health and Accident Producer — American Health Plans, United States	February 2021 - June 2023
Life Insurance Agent — World Financial Group (WFG), Mount Clemens, Michigan	July 2021 - April 2022

EDUCATION

MIT xPRO Certificate, Designing AI Products & Services — Artificial Intelligence / Machine Learning · May 2026	Michigan State University Bachelor's degree, Computer Science · May 2023 – November 2023
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AWARDS

Exemplary Assignment — Final Capstone Project MIT xPRO — Massachusetts Institute of Technology · 22 July 2026	Exemplary Assignment — Sustainability, Feasibility and Responsibility of GANs MIT xPRO — Massachusetts Institute of Technology · 16 July 2026
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CERTIFICATIONS & LICENCES

Designing and Building AI Products and Services MIT xPRO — Massachusetts Institute of Technology · 17 July 2026	Full Stack Web Development Coding Boot Camp Michigan State University — College of Engineering
Residential Mortgage Loan Originator License NMLS	Front End Development Libraries freeCodeCamp
Responsive Web Design freeCodeCamp	

TECHNICAL

LANGUAGES	TypeScript · JavaScript · Python · Apex · PowerShell · SQL
AI & ML	RAG · LLM orchestration · vector DBs & embeddings · OpenAI Realtime · Anthropic · Haystack · Ollama · Chroma · BM25 · Whisper · vLLM on ROCm · voice cloning · OCR ingestion · lead scoring · anomaly detection · eval harnesses and golden sets
CLOUD	AWS — Lambda, API Gateway, Amplify, S3, DynamoDB, Lightsail, IAM · Cloudflare Pages · Docker
SALESFORCE	Apex · LWC · Flows · Named Credentials · custom metadata · permission sets · multi-org promotion, validation-first deploys
TELEPHONY	Telnyx · Twilio · SIP · Five9 · signed webhooks · caller-ID rotation and reputation · predictive pacing
INTERFACES	React · Next.js · Vite · Three.js · Electron · Capacitor · embedded Salesforce over postMessage
SECURITY	Ed25519 signing · hash-chained audit logs · fail-closed gates · JWT auth · intrusion and drift detection
REGULATORY	ECOA / Reg-B · TCPA · DNC · FCRA · two-party recording consent · state licensing · adverse-action reasoning · PII