

# DARPAN NEMADE

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## Summary

AI/ML Engineer skilled in building machine learning pipelines, LLM-powered applications, RAG systems, and scalable automation workflows using n8n. Experienced in model training, feature engineering, evaluation, and integrating AI models into real-world systems. Strong problem-solving, analytical thinking, and collaboration skills with a track record of delivering high-impact ML and GenAI solutions.

## Technical Skills

**Machine Learning:** Supervised/Unsupervised Learning, Feature Engineering, Model Evaluation, Validation

**GenAI & NLP:** LLaMA 3, RAG, Prompt Engineering, Agentic Workflows, Embeddings, Summarization

**Deep Learning:** PyTorch, TensorFlow, CNNs, RNNs, Transformers, Training Pipelines

**Automation & Pipelines:** n8n Automation, Workflow Orchestration, REST Webhooks, ETL-style Pipelines

**Computer Vision:** YOLOv8, Faster R-CNN, OpenCV, UE5 Integration

**Development Tools:** Streamlit, Flask, MongoDB, WebSockets, Solidity, CUDA

**Programming:** Python, JavaScript, Java

## Projects

### ODIN — AI-Powered NFT Marketplace

Aug 2025

- Built an LLM-based wallet agent for secure blockchain actions (minting, transfers, balance queries), reducing user interaction effort by 55%.
- Implemented an ML-driven RAG retrieval layer using embeddings for accurate intent classification and context-aware recommendations.
- Designed n8n-based automation workflows for transaction monitoring, event triggers, and Slack/Trello notifications.
- Added EIP-191 signature verification lowering unauthorized wallet activity by 40%.
- Performed gas usage benchmarking and optimized Solidity contracts achieving an 18% improvement in efficiency.

### EvoCine — Multimodal Cinematic Trailer Generator

Sep 2025

- Engineered a text-to-video ML pipeline combining SDXL, AnimateDiff, and Stable Video Diffusion for multimodal scene generation.
- Applied CLIP-based scoring with genetic optimization improving aesthetic and narrative coherence by 40%.
- Integrated Coqui TTS, MusicGen, and Wav2Lip to align audio, lip movement, and generated scenes.
- Applied Real-ESRGAN upscaling and frame refinement to produce stable 1080p/2K-quality output.

### Email Productivity Agent (LLaMA 3 + n8n Automation)

Nov 2025

- Built an offline LLaMA 3 automation agent that reduced manual email handling time by 65%.
- Designed structured JSON extraction achieving 92% accuracy for task detection, prioritization, and summarization.
- Developed n8n workflows for email ingestion, rule-based routing, Slack/Trello/Sheets synchronization, and auto-reply generation.
- Implemented agentic pipelines (trigger → inference → action → log) enabling autonomous workflow execution.
- Added long-context reasoning and tone-controlled reply generation using instruction-tuned prompts.

### Thermal Surveillance System (YOLOv8 + Faster R-CNN)

Apr 2025

- Built a two-stage computer vision pipeline using YOLOv8 and Faster R-CNN improving detection accuracy on thermal footage by 32%.
- Performed preprocessing, augmentation, and evaluation using mAP and IoU metrics.

- Achieved real-time inference (¡120ms) using CUDA optimization and asynchronous processing.
- Integrated UE5 visualization for rendering 3D bounding overlays from live detections.

## Music Streaming Platform

Apr 2025

- Developed JWT-secured REST APIs reducing unauthorized access attempts by 25%.
- Delivered low-latency audio streaming (¡50ms) using WebSockets and optimized buffering.
- Improved MongoDB query efficiency by 35% using aggregation pipelines and indexing.

## Certifications

**IBM Generative AI Certification** — IBMCE

**MongoDB Full-Stack Developer Certification** — MongoDB University

## Education

**Bachelor of Technology, VIT Bhopal University**

Expected 2026

Specialization: Computer Science (AI & ML) — GPA: 8.61/10

## Leadership

**House Captain** — Yashshree Academy

2017–2020

**Event Committee Member** — VIT Maharashtra Club

2023–2025