

# Woon · Industrial Real-Time Data + LLM Product Engineer

Physical AI & Manufacturing Data Pipeline

## §0 SUMMARY

Industrial data depth × LLM product ownership — data primitives proven on an industrial vehicle fleet telemetry pipeline (as a team member), and a full-stack LLM product I plan, build, deploy, and operate alone. Both pointed at robot-manufacturing foundation-model data infrastructure and traditional-manufacturing AI workflows.

## §4 VERIFIED — INDUSTRIAL VEHICLE FLEET TELEMETRY (TEAM)

### Industrial Vehicle Fleet · 4-tier distributed telemetry pipeline

TEAM — FIRST-PERSON PLURAL / OWN CONTRIBUTION

Operation duration: 1 year 5 months · 2 dev teams

Own contribution: InfluxDB ops / Converter module ops

Tier 1 (ingest) Django/Flask webhook · raw hex preserved → Tier 2 (decode) ISO-TP reassembly + expression DSL + 4-pack BMS alignment → Tier 3 (analytics) Celery module plug-ins (summary / driving\_score / submatrix / avro) → Tier 4 (output) measurement InfluxDB + Avro on GCS

4-pack BMS async signals per vehicle	→ 30+ joints + F/T + vision per robot · N machines per line
CAN ISO-TP multi-frame	→ ROS2 chunked / OPC-UA chunked
Per-model .dbc / Excel DSL	→ Per-robot URDF / per-PLC vendor protocol

Disclosed metric: operation duration only. Vehicle counts / throughput / latency stay under NDA.

## §5 VERIFIED — LLM PRODUCT UNTAMEDAI.ME (SOLO)

### LLM consumer product untamedai.me — plan → architect → build → deploy → operate (solo)

SOLO — FULL-STACK OWNERSHIP

Stack: Next.js · Python FastAPI · Supabase · Cloudflare · GPT + Claude Opus · Polar

- Memory architecture (short-term context / long-term vector / summary store) · safety guardrails · MBTI-inference consistency.
- Token-cost discipline, moderation false-positive/negative balance, ROI decisions on new features.
- Cost · safety · iteration loop — daily decisions of a production LLM operator.

## §3 THREE TRANSFERABLE PRIMITIVES

### Three pillars proven on the industrial vehicle fleet — port directly into robot mfg / traditional mfg.

- P1** Fragmented Stream Reassembly — CAN ISO-TP · ROS2 chunked · OPC-UA · MTConnect — windowed mask-bitmap reassembly.
- P2** Multi-Source Temporal Alignment — 4-pack BMS / 30+ joint + F/T + vision / multi-sensor chamber — cycle-level alignment.
- P3** Schema-Driven Device Decoder — Per-model .dbc → robot URDF / multi-PLC AddressSpace integration.

## §6 INTEREST / TARGET AREAS

### What I want to build — robot-mfg + existing-mfg AI workflows

PROPOSAL — WANT TO BUILD / READY TO DEPLOY

Note: Domain depth (robotics / semi / steel) is post-hire learning. The items below are application areas, not lived experience.

#### 6a · Robot Manufacturing & Foundation Data

- Imitation-learning data pipeline (RLDS / TFDS / Open X-Embodiment).
- Sim-to-real telemetry bridge (reality-gap quantification).
- VLA foundation-model data curation — instruction segmentation + LLM-ops intuition.
- Robot-line QC telemetry (end-of-line → field-failure traceability).

#### 6b · Existing Manufacturing AI Workflow

- Line-telemetry substrate — multi-PLC + OPC-UA + MTConnect unified.
- Cycle-level quality prediction (TFT / Patch-TST baselines).
- Line-assistant LLM — RAG over machine logs + SOP + history.
- Anomaly localization (SHAP-based contribution decomposition).

## §9 ENGINEERING PRACTICE

## How I work

### AI-Fluent

AI as a teammate joining the codebase  
— the trust boundary applied consistently.  
Tool ≠ collaborator.

### Operator

Cost / safety / user / model in view at once  
— intersection of senior engineer and PM.

### Honest Transition

Explicit split of current assets vs learning  
area. Saying "I don't know" builds trust.

## §10 TECH STACK — EV → ROBOT / MANUFACTURING EQUIVALENTS

INGESTION / BUS	Django · Flask webhook → ROS2 · DDS · Kafka · OPC-UA · MQTT
TIME-SERIES	InfluxDB → TimescaleDB · ClickHouse · MCAP
METADATA DB	MySQL → PostgreSQL
DISTRIBUTED TASK	Celery + django-celery-beat → Celery · Airflow · Dagster · Ray
PROCESS POOL	multiprocessing → Ray · Dask
REPLAY FORMAT	Avro → MCAP · Parquet · RLDS
STORAGE	GCS → S3 · Azure Blob
LLM (UNTAMEDAI)	Next.js · FastAPI · Supabase · Cloudflare · GPT + Claude Opus · Polar

IP / honesty guard: §4 EV first-person plural / period-only metric. §6 first-person intent (not lived experience). H-08 / H-05 / H-10 honored.