



CHANONT WANKAEW

AI Engineer & Multi-Agent Systems Architect

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PROFESSIONAL SUMMARY

Entrepreneurial AI engineer with demonstrated expertise in building production-scale multi-agent systems and human-AI collaboration frameworks. Founded and architected Zynx AI, a comprehensive 52-agent ecosystem deployed on Google Cloud Platform, serving as both technical lead and product visionary. Specialized in GPU-optimized machine learning pipelines, ethical AI development, and cross-cultural AI persona design. Proven track record of delivering robust, scalable AI solutions under resource constraints while maintaining strict compliance standards and production reliability.

CORE TECHNICAL COMPETENCIES

Multi-Agent Architecture & Orchestration

Designed and implemented a distributed agent ecosystem with centralized dispatch management, asynchronous queue systems, and intelligent load balancing. Achieved sub-100ms latency across 52 specialized agents including OCR, ASR, translation, memory management, and analytical dashboard components.

Advanced Machine Learning Engineering

Optimized GPU-accelerated computer vision and natural language processing pipelines on NVIDIA RTX 4050 hardware. Implemented Tesseract v5 OCR with OpenCV preprocessing, Whisper v1.3.0 multilingual ASR, and GPT-4 Vision integration for document translation workflows achieving 24 pages per minute throughput.

Production System Design & Deployment

Architected full-stack applications using FastAPI, React 18, and PostgreSQL, containerized with Docker and deployed on Firebase Hosting with custom SSL configuration. Established comprehensive monitoring systems with Prometheus-style metrics, automated health checks, and proactive alerting mechanisms.

Ethical AI & Compliance Engineering

Developed PDPA-compliant data handling protocols with comprehensive metadata tracking, secure session management, and privacy-preserving memory architectures. Implemented defensive AI systems to prevent unauthorized access and ensure responsible AI behavior in production environments.

Cross-Cultural AI Persona Development

Created "น้องดีจ้า" (Deeja), an emotionally intelligent AI persona optimized for Thai-English bilingual interactions, featuring vector-based memory systems using Chroma and FAISS with 8,192-token context windows and role-based access control.

PROFESSIONAL EXPERIENCE

Founder & Lead AI Engineer | Zynx AI

June 2024 – Present

System Architecture & Technical Leadership

Architected and deployed Zynx.Zero, a sophisticated agent orchestration platform managing 52 specialized AI agents with distributed queueing and asynchronous FastAPI worker processes. Achieved consistent dispatch latency under 100 milliseconds while maintaining system stability across GPU-intensive workloads on resource-constrained hardware.

Advanced Document Processing Pipeline

Engineered an end-to-end document translation system integrating Tesseract v5 OCR, GPT-4 Vision API, and custom PDF overlay technology. Preserved complex document layouts including tables, forms, and signature blocks while achieving 24 pages per minute processing speed for Thai-English document pairs with 100% layout fidelity.

Intelligent Memory & Conversation Management

Developed sophisticated vector-based memory systems using Chroma and FAISS for persistent conversation context and knowledge retention. Implemented PDPA-compliant metadata injection with UUID tracking, authorship attribution, and timestamp management across all generated outputs and stored files.

Production Monitoring & Reliability Engineering

Established comprehensive system monitoring using distributed pub/sub architecture for

real-time health metrics, automated vector store compaction, and scheduled database maintenance. Configured intelligent alerting for GPU memory utilization, CPU performance, and manifest validation errors with automated retry mechanisms.

Multilingual Speech Recognition Systems

Integrated Whisper v1.3.0 for Thai-English automatic speech recognition with intelligent audio segmentation for extended recordings. Implemented GPU-optimized processing with dynamic batching to prevent VRAM overflow while maintaining transcription accuracy and processing speed.

Compliance & Security Framework

Designed and implemented "Deeja Core Defense Firewall" for unauthorized command interception and session security management. Established comprehensive audit trails with retroactive metadata insertion for intellectual property protection and regulatory compliance across all system outputs.

Technical Documentation & Stakeholder Communication

Authored investor-grade technical documentation including system architecture specifications, API documentation, and production deployment guides. Created comprehensive pitch materials with embedded demonstrations and technical deep-dives for potential partners including OpenAI collaboration proposals.

KEY TECHNICAL ACHIEVEMENTS

Zynx Multi-Agent Ecosystem Development

Successfully developed and deployed a complete 52-agent artificial intelligence ecosystem with production-ready modules across frontend, backend, manifest validation, and export systems. Achieved full system deployability with comprehensive error handling, monitoring, and automated recovery mechanisms.

GPU-Optimized Computer Vision Pipeline

Implemented high-performance OCR processing on NVIDIA RTX 4050 hardware with dynamic batch size optimization to prevent memory overflow. Achieved optimal GPU utilization while maintaining processing speed and accuracy across diverse document types and languages.

Real-Time Analytics Dashboard

Built comprehensive React-based dashboard with Recharts integration for cellular network performance analysis, featuring persistent filtering capabilities, CSV export functionality for datasets up to 10,000 rows, and real-time map visualizations using React-Leaflet.

Model Context Protocol Integration

Developed MultiProviderMap abstraction layer for seamless routing between multiple large language model providers with intelligent fallback mechanisms and asynchronous request handling using Python 3.10 coroutines.

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, TypeScript

Frameworks & Libraries: FastAPI, React 18, Next.js, Tailwind CSS

Machine Learning: OpenCV, Tesseract, Whisper, GPT-4 Vision, Chroma, FAISS

Infrastructure: Docker, Google Cloud Platform, Firebase, PostgreSQL

Monitoring & DevOps: Prometheus-style metrics, automated health checks, CI/CD

Compliance: PDPA, data privacy, ethical AI frameworks

EDUCATION

Bachelor of Engineering in Telecommunications Engineering

Specialized coursework in signal processing, network protocols, and systems architecture providing foundational knowledge for AI infrastructure development and distributed systems design.

Self-Directed Advanced Learning in AI & Machine Learning

Comprehensive hands-on research and development in multi-agent systems, large language model integration, vector search optimization, and production AI deployment methodologies.

LANGUAGES

Thai: Native proficiency

English: Professional working proficiency

ALIGNMENT WITH TARGET ORGANIZATIONS

OpenAI & Anthropic Relevance

Demonstrated expertise in responsible AI development, multi-agent orchestration, and human-AI collaboration directly aligns with advancing artificial general intelligence research. Proven ability to build production-scale AI systems with ethical considerations, cross-cultural sensitivity, and robust safety mechanisms positions me to contribute meaningfully to cutting-edge AI research and development initiatives.

Research & Development Contributions

Experience in designing novel AI architectures, optimizing model performance under resource constraints, and developing innovative approaches to AI safety and alignment. Strong foundation in both theoretical understanding and practical implementation of advanced AI systems with emphasis on beneficial AI development.

Detailed technical documentation, code samples, and project demonstrations available upon request.