Amir Kalateh

AI/ML Technical Architect & Advanced LLM Systems Engineer

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Portfolio: www.fxhub.tech | AI Projects: poe.com/fxaiteam | GitHub: github.com/amirkalateh

SUMMARY

Pioneer in advanced LLM architectures and autonomous agent systems with expertise in multi-agent frameworks, sophisticated memory management, and advanced NLP solutions. Specialized in designing and implementing production-grade AI systems featuring advanced RAG architectures, complex prompt engineering, and adaptive learning capabilities. Proven track record in developing scalable AI solutions with focus on agent-based architectures and advanced language model integration.

CORE COMPETENCIES

AI Architecture & Agent Systems
- Multi-Agent Architectures: Network, Supervisor, Hierarchical, Custom Workflows
- Agent Frameworks: LangChain, LangGraph, Custom Agent Implementations
- Memory Systems: Episodic, Semantic, Procedural, Dynamic Consolidation
- Agent Communication: Graph State Management, Tool-based Integration
- Reflection Systems: Self-evaluation, Critique Generation, Performance Optimization

LLM & NLP Technologies
- Advanced RAG Systems: Adaptive RAG, Corrective RAG, Self-RAG
- Prompt Engineering: Chain-of-Thought, Few-shot Learning, Context Engineering
- Fine-tuning: Parameter-Efficient Fine-tuning, Custom Dataset Training
- Model Integration: OpenAI, Anthropic, Mistral, Meta, Hugging Face, Google Gemini
- Evaluation Frameworks: Agent-based Testing, Multi-perspective Analysis

Development & Infrastructure
- Languages & Frameworks: Python, TensorFlow, PyTorch, Transformers
- Vector Databases & Search: FAISS, Pinecone, Weaviate
- MLOps: Model Deployment, Monitoring, Version Control
- Infrastructure: Docker, Kubernetes, GPU Optimization

PROFESSIONAL EXPERIENCE

CEO & CTO | FX AI (2023 - Present)
Advanced Agent Architecture Development
- Pioneered multi-agent systems featuring:
  - Hierarchical supervisor architecture with specialized agent teams
  - Advanced RAG pipeline with 95% retrieval accuracy
  - Dynamic memory management with 4-tier architecture
  - Custom reflection and self-improvement mechanisms
  - Tool integration framework with 20+ specialized tools

AI Systems Innovation
- Developed AcademicWriterWizard (Top 100 on Poe.com/academicwriterwizard):
- Implemented hierarchical planning and execution system
- Built advanced context-aware response generation
- Integrated corrective RAG for accurate citations
- Developed custom evaluation metrics for academic content

Technical Architecture
- Architected FX Integrated Systems featuring:
- Multi-agent communication protocols
- Graph-based state management
- Custom workflow orchestration
- Advanced error recovery systems
- Real-time performance optimization

AI Technology Advisor | Provincial Governments (2023 - Present)
- Designed enterprise-scale multi-agent systems:
- Implemented supervisor-based architecture for task delegation
- Developed custom RAG systems for government documentation
- Created specialized agent teams for different governmental domains
- Built evaluation frameworks for system performance

CEO | Falch Films (2021 - 2023)
- Led AI integration initiatives:
- Developed content analysis using multi-agent systems
- Implemented self-improving recommendation engines
- Created specialized agent teams for content categorization
- Built custom evaluation frameworks for content quality

TECHNICAL EXPERTISE

AI/ML & Agent Systems
- Advanced Agent Architectures: LangGraph, Custom Implementations
- LLM Integration: OpenAI, Claude, Hugging Face, Google Gemini
- Memory Management: Vector Stores, Graph Databases, Custom Solutions
- RAG Systems: Adaptive, Corrective, Self-RAG Implementations
- Agent Communication: Tool-based, Graph State, Custom Protocols

Development Stack
- Core: Python, Java, C++
- ML Frameworks: TensorFlow, PyTorch, Scikit-learn
- NLP Tools: Transformers, NLTK, SpaCy, LangChain
- Infrastructure: Docker, Kubernetes, Cloud Platforms
- Databases: Vector DBs, Graph DBs, Traditional SQL/NoSQL

EDUCATION

Bachelor of Engineering - Computer Engineering
University of Shiraz (2016-2021)
- Specialized in Computer Systems Architecture
- Vice President of Computer Engineering Scientific Association

LANGUAGES

Persian (Native), English (Professional Working Proficiency)