

Vu Dinh

Software Developer | Analytical Problem Solver | Systems Thinker

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Professional Summary

Entry-level software developer with demonstrated experience in full-stack application development, distributed systems architecture, and analytical problem-solving. Proven ability to translate complex requirements into practical solutions through systematic thinking and iterative development. Experience building production-ready applications serving real users, with strong foundation in modern development practices including AI-assisted workflows and documentation-driven project management.

Technical Skills

Programming Languages & Frameworks

- Flutter/Dart (Mobile development)
- Python (Backend systems, FastAPI)
- JavaScript (Web applications)
- SQL (Database design)

Technologies & Tools

- Mobile Development: Android, Flutter SDK
- Backend: REST APIs, FastAPI, Dart Frog
- Hardware Integration: Raspberry Pi, USB HID protocols
- Infrastructure: Distributed systems, VPN networking (Tailscale)
- AI Integration: LLM-assisted development workflows
- Version Control: Git (semantic commit messages)

Core Competencies

- Full-stack application architecture
- Distributed systems design
- Database modeling
- Hardware-software integration
- Requirements analysis and system design
- Performance optimization and debugging

Project Experience

Distributed Gaming Automation System

Personal Project | 2024

- Designed and implemented three-tier distributed system with Raspberry Pi execution layer, Python backend server, and Flutter mobile frontend
- Architected clean separation of concerns: semantic command translation, hardware interface (USB HID), and user control interfaces
- Developed robust communication protocols supporting remote control via API endpoints
- **Impact:** Achieved reliable automation with 15+ minute session stability; currently developing enhanced version with advanced randomization algorithms

Business Payroll Management System

Family Restaurant | 2024

- Built distributed timeclock system serving small business with Android clients and on-site Raspberry Pi server
- Implemented location verification through WiFi network matching and real-time data synchronization
- Developed comprehensive admin interface with payroll reporting, anomaly detection, and tip calculation features
- **Impact:** Reduced payroll processing time from 60-90 minutes to under 5 minutes (25-30x improvement)

Custom Educational Mobile Application

Personal/Family Project | 2024

- Created DMV knowledge test preparation app using AI-generated question bank (200+ questions)
- Developed comprehensive study system covering full knowledge requirements when official Vietnamese resources were unavailable
- Built with Flutter targeting Android platform with intuitive user interface design
- **Impact:** Enabled successful DMV test completion on first attempt after previous failures

Personal Data Management Application

Personal Project | 2024

- Developed fuel tracking application for personal use with Android deployment
- Implemented data logging, analysis, and visualization features
- Focused on clean architecture and user experience optimization

Problem-Solving & Analytical Achievements

Advanced Algorithm Development

- Independently developed novel $O(n)$ backwards-traversal algorithm for array reachability problems
- Reconstructed complex algorithms (Floyd's cycle detection, Kadane's algorithm) from first principles with mathematical proof verification
- Created original mental frameworks for understanding functional programming concepts (curried functions via recursion parallels)

Systems Architecture & Design

- Designed space-efficient data structures for sparse array implementations with $O(1)$ space complexity optimization
- Developed comprehensive solution for stack interleaving problems using monotonic stack techniques
- Applied systematic approach to complex technical interview challenges with focus on correctness and optimal performance

Technical Communication & Documentation

- Authored technical blog content explaining complex programming concepts with original pedagogical approaches
- Developed documentation-first project management methodology through necessity of managing complex, multi-component systems
- Created comprehensive technical specifications and progress tracking systems for distributed application development

Professional Development & Learning Approach

AI-Integrated Development Workflow

- Developed AI-assisted development practices, achieving 5x improvement in analytical problem-solving capabilities
- Learned advanced project management methodologies through hands-on experience with complex system development
- Mastered documentation-driven development approach to maintain project coherence across extended development cycles

Cross-Platform Technical Understanding

- Gained practical experience with full-stack development complexity and realistic scope assessment
- Developed collaborative mindset and understanding of specialized domain expertise requirements
- Applied iterative problem-solving approach with emphasis on practical constraints and user requirements

Key Professional Qualities

Analytical Depth: Consistently develops original insights and novel solutions to complex problems

Systematic Thinking: Applies structured frameworks to break down and solve multifaceted challenges

Practical Focus: Balances theoretical understanding with real-world constraints and delivery requirements

Learning Agility: Rapidly acquires new technical skills and adapts approaches based on project needs

Professional Maturity: Demonstrates realistic scope assessment and honest evaluation of capabilities and limitations

User-Centered Design: Prioritizes solving real problems for actual users over technical perfection

Education & Continuous Learning

Self-Directed Technical Education

- Advanced algorithm design and analysis
- Distributed systems architecture
- Mobile and web application development
- Modern development practices and AI integration
- Project management and documentation methodologies

Available for full-time positions in the Orange County and Bay Area. Open to roles emphasizing analytical problem-solving, system design, and collaborative development environments.