

# **Extracted Expectations & Qualifications**

This document consolidates the common expectations, qualifications, and technical requirements across the Software Engineering and Machine Learning roles from the previously shared job listings.

The focus is strictly on what employers are expecting from candidates.

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## **I. Machine Learning / AI Roles - Common Expectations**

### **Core Technical Skills**

- Strong foundation in Machine Learning fundamentals (supervised/unsupervised learning, model evaluation, overfitting, bias-variance tradeoff)
- Experience implementing ML/DL models using frameworks such as PyTorch or TensorFlow
- Understanding of model validation, benchmarking, and performance metrics
- Knowledge of data preprocessing, feature engineering, and dataset handling
- Familiarity with statistics and probability for ML modeling

### **Systems & Engineering Expectations**

- Ability to integrate ML models into production systems
- Experience working with large-scale datasets
- Understanding of distributed systems or scalable infrastructure (preferred for AI platform roles)
- Writing clean, maintainable, and production-quality code

### **Research-Oriented Roles (Waymo, ByteDance Research, AI-native systems)**

- Strong mathematical background (linear algebra, optimization)
- Experience reading and implementing research papers
- Ability to prototype and experiment independently
- Experience with model architecture design and experimentation

### **Platform / AI Infrastructure Roles**

- Building internal ML tools or pipelines
- Knowledge of model deployment workflows
- Experience with backend services supporting ML systems
- Understanding of performance optimization and system bottlenecks

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## **II. Software Engineering Roles – Common Expectations**

### **Core Programming Skills**

- Strong proficiency in one or more languages (C++, Java, Python, Go, etc.)
- Solid understanding of data structures and algorithms
- Ability to write efficient, scalable, and testable code
- Experience with debugging and performance optimization

### **Backend & Systems Engineering**

- Understanding of distributed systems concepts
- Knowledge of REST APIs and backend service development
- Experience with databases (SQL and/or NoSQL)
- Familiarity with concurrency and multi-threading
- Understanding of system design fundamentals

### **Database / Data Infrastructure Roles**

- Strong SQL proficiency
- Understanding of relational schema design
- Knowledge of primary/foreign keys and data integrity constraints
- Experience troubleshooting database connectivity issues
- Backend system integration experience

### **Product-Focused Engineering Roles**

- Ability to collaborate with cross-functional teams
- Writing production-grade, user-impacting software
- Fast iteration and shipping features at scale
- Ownership mindset and accountability

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## **III. Behavioral & General Expectations Across Roles**

- Strong problem-solving ability
- Ability to work in fast-paced, collaborative environments
- Ownership and accountability for assigned work

- Strong communication skills (technical clarity)
  - Willingness to learn new technologies quickly
  - Demonstrated passion for technology and building systems
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## IV. Internship-Specific Expectations

- Currently enrolled in a Bachelor's, Master's, or PhD program
  - Strong academic foundation in Computer Science or related field
  - Previous internship or project experience preferred but not always required
  - Ability to work full-time during internship duration
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## Summary Insight

Across both Software and ML roles, companies are primarily evaluating:

- 1 . Strong coding ability
- 2 . Solid computer science fundamentals
- 3 . Systems thinking (not just model training)
- 4 . Ability to contribute in production environments
- 5 . Ownership and problem-solving maturity

This consolidated view represents the core expectations employers are looking for across the relevant descriptions.