

# Complete Interview Q&A; Guide – Priya Singh

*Based on CV (AI, Deep Learning & Computer Vision Specialization)*

## 1. Personal & Career Background

**Q: Tell me about yourself.**

A: I'm Priya Singh, pursuing MCA from Netaji Subhash Engineering College. Passionate about AI, Computer Vision, and problem-solving through deep learning.

**Q: Why did you choose Computer Science?**

A: I enjoy logical thinking and building real-world tech solutions, which CS allows me to do.

**Q: What inspired your interest in AI?**

A: Seeing how AI improves healthcare and automation motivated me to explore it deeper.

**Q: Why MCA after B.Sc.?**

A: B.Sc. built theory; MCA gives practical experience and exposure to real projects.

**Q: What are your short-term and long-term goals?**

A: Short-term: gain real project experience. Long-term: become an AI engineer creating scalable systems.

**Q: How do you balance study and projects?**

A: By setting daily goals and maintaining consistent time blocks for learning and development.

**Q: How do you keep your skills updated?**

A: Following Kaggle, AI blogs, and attending bootcamps keeps me up-to-date.

## 2. Education Section

**Q: Which subject helped most in projects?**

A: Machine Learning and Data Analytics were most useful for understanding model building.

**Q: How did B.Sc. in CS, Math, and Stats help?**

A: It strengthened logic and statistics, essential for ML and AI work.

**Q: Favorite area in CS and why?**

A: AI — it combines programming, math, and creativity.

**Q: How do you manage academic and project work?**

A: By dividing work into milestones and tracking progress regularly.

**Q: Have you done any research/seminar?**

A: Yes, participated in seminars on AI and deep learning applications.

### 3. Skills Section

**Q: Which Python libraries do you use?**

A: NumPy, Pandas, OpenCV, TensorFlow, and Scikit-learn.

**Q: Difference between NumPy, Pandas, and Scikit-learn?**

A: NumPy for numeric arrays, Pandas for dataframes, Scikit-learn for ML algorithms.

**Q: How do you use OpenCV?**

A: For image preprocessing, object detection, and gesture recognition.

**Q: Preferred IDE?**

A: VS Code and Jupyter Notebook for flexibility and visualization.

**Q: Proficiency in SQL?**

A: I can write queries, joins, and optimize database retrievals.

**Q: How to optimize SQL queries?**

A: By indexing and reducing nested queries.

**Q: How do you debug Python programs?**

A: Using print statements, exception handling, and Jupyter notebook testing.

**Q: Example of communication skills in teamwork?**

A: Dividing tasks clearly and resolving issues early improved group performance.

### 4. Project 1 – Leukemia Detection

**Q: Objective of project?**

A: To detect leukemia from blood cell images using CNN with MobileNetV2.

**Q: Why MobileNetV2?**

A: It's efficient and lightweight, suitable for real-time and mobile applications.

**Q: Dataset used?**

A: A publicly available Kaggle dataset of blood cell images.

**Q: Preprocessing steps?**

A: Image resizing, normalization, and augmentation for balance.

**Q: Model setup?**

A: MobileNetV2 with transfer learning using TensorFlow/Keras.

**Q: Accuracy?**

A: Achieved around 90–95% accuracy with high recall.

**Q: How handled imbalance?**

A: Used augmentation and balanced batch generation.

**Q: Deployment idea?**

A: Convert to TensorFlow Lite and deploy via a mobile app or Flask API.

**Q: Challenge faced?**

A: Overfitting — solved using dropout and regularization.

**Q: Improvement idea?**

A: Add explainability through Grad-CAM visualizations.

## 5. Project 2 – Rock-Paper-Scissors Game

**Q: How does it work?**

A: Webcam captures frames, OpenCV processes them, CNN predicts gestures in real-time.

**Q: How did you create dataset?**

A: Collected manually and expanded via augmentation.

**Q: Background subtraction used?**

A: No, trained model directly on raw frames for simplicity.

**Q: CNN architecture used?**

A: Custom CNN with convolution, pooling, and dense layers.

**Q: Game logic integration?**

A: Used Python logic for countdown, score tracking, and win conditions.

**Q: Performance?**

A: Smooth real-time performance at 20–25 FPS on CPU.

**Q: Challenges?**

A: Lighting variations and multiple hand confusion handled via preprocessing.

**Q: Future scope?**

A: Extend to recognize multiple gestures or sign language.

## 6. Certifications

**Q: What did you learn from Microsoft Cybersecurity?**

A: Fundamentals of cloud and network security.

**Q: What's in Cryptology Certificate?**

A: Encryption algorithms like RSA and AES for data protection.

**Q: What did Saroban Bootcamp cover?**

A: AI and ML basics with real-world mini-projects.

**Q: Machine Learning Workshop learnings?**

A: Hands-on model training and evaluation practice.

**Q: How did certifications help?**

A: Enhanced conceptual clarity and real-world exposure.

## **7. General Technical & Problem Solving**

**Q: How do you approach problem-solving?**

A: Break down tasks, test modules individually, and iterate.

**Q: How to verify model performance?**

A: Use test data with metrics like accuracy, precision, recall.

**Q: Accuracy vs Precision?**

A: Accuracy measures overall correctness; precision focuses on positive predictions.

**Q: What is overfitting?**

A: When a model memorizes training data; fixed with regularization or dropout.

**Q: Explain transfer learning.**

A: Reusing pre-trained models for new tasks with similar data.

**Q: What is data augmentation?**

A: Creating modified copies of data to improve model generalization.

**Q: When is a model production-ready?**

A: When it performs consistently, efficiently, and reliably.

**Q: Explain bias–variance trade-off.**

A: Balancing between underfitting (bias) and overfitting (variance).

**Q: Batch vs mini-batch gradient descent?**

A: Batch uses whole data; mini-batch uses small subsets for faster convergence.

**Q: Debugging tools?**

A: PDB debugger, print logs, and validation tests.

## **8. Behavioral & Soft Skills**

**Q: Example of teamwork?**

A: Handled model training while teammates managed UI integration.

**Q: Learning something fast?**

A: Learned MobileNetV2 architecture within a week for my project.

**Q: Handling stress?**

A: Prioritize tasks and take short breaks to stay productive.

**Q: How do hobbies help?**

A: Painting improves focus and creative problem-solving.

**Q: Failure example?**

A: Initial model accuracy was poor; learned to analyze error patterns.

**Q: Handling criticism?**

A: Take it positively as an opportunity for improvement.

**Q: Task prioritization?**

A: Rank tasks by urgency and impact to meet deadlines.

## **9. Future-Oriented**

**Q: Preferred AI domain?**

A: Computer Vision for its visual, impactful real-world applications.

**Q: What are you learning now?**

A: Model deployment with Flask and TensorFlow Lite.

**Q: Projects that excite you?**

A: AI systems in healthcare and automation domains.

**Q: Where do you see yourself in five years?**

A: As an AI Engineer contributing to impactful tech projects.

**Q: How will you contribute to our organization?**

A: By bringing fresh ideas, technical skill, and problem-solving mindset.

## **Final Tips for Interview**

- Be confident but concise when explaining your projects.
- Highlight results and metrics wherever possible.
- Use simple language to explain technical terms.
- Always connect your answers to real-world applications.
- Show curiosity and enthusiasm for AI advancements.