Dear Hiring Manager,

I am excited to apply for this role. With a strong background in deep learning, computer vision, and robotics, I have developed and deployed state-of-the-art perception solutions that bridge the gap between cutting-edge research and real-world applications.

Currently, as a **Robotics Software Engineer, Perception II at ArcBest**, I lead the development of machine learning-based perception systems for warehouse automation. My work involves **object detection, segmentation, tracking (image & point cloud), and sensor fusion**, with a strong focus on deploying ML models on edge devices and cloud infrastructure. My contributions include **a CUDA-accelerated point cloud filtering pipeline**, a state machine-based perception pipeline for barcode scanning, and Azure-based MLDC pipelines for training and deployment.

Beyond industry experience, I have actively contributed to research in **deep learning for perception**. My publications include:

- **"Generative AI in Vision" (arXiv, 2024)** – A comprehensive survey on models, metrics, and applications of generative AI in vision tasks.
- **"Multi-agent Collaborative Perception for Robotic Fleets" (ECCV'24)** – A systematic review on collaborative sensing in autonomous robots.
- **"End-to-End 3D Object Detection using LiDAR Point Cloud" (ICMI'24)** – Developed a novel 3D object detection network achieving **state-of-the-art performance** on KITTI.

I am highly skilled in **deep learning frameworks (PyTorch, TensorFlow), real-time perception pipelines (ROS/ROS2, OpenCV, PCL), and efficient model deployment (CUDA, ONNX, Docker)**. My expertise in **MLOps and cloud-based deployment** ensures scalable and efficient implementation of ML models in production environments.

I am currently on an **H-1B visa with six years (including renewal) remaining before expiration** and am open to relocation. I would welcome the opportunity to discuss how my expertise in perception, deep learning, and deployment can contribute to your team.

Thank you for your time and consideration. I look forward to the possibility of speaking with you.

Best regards,
Gaurav Raut