

Solution Architecture

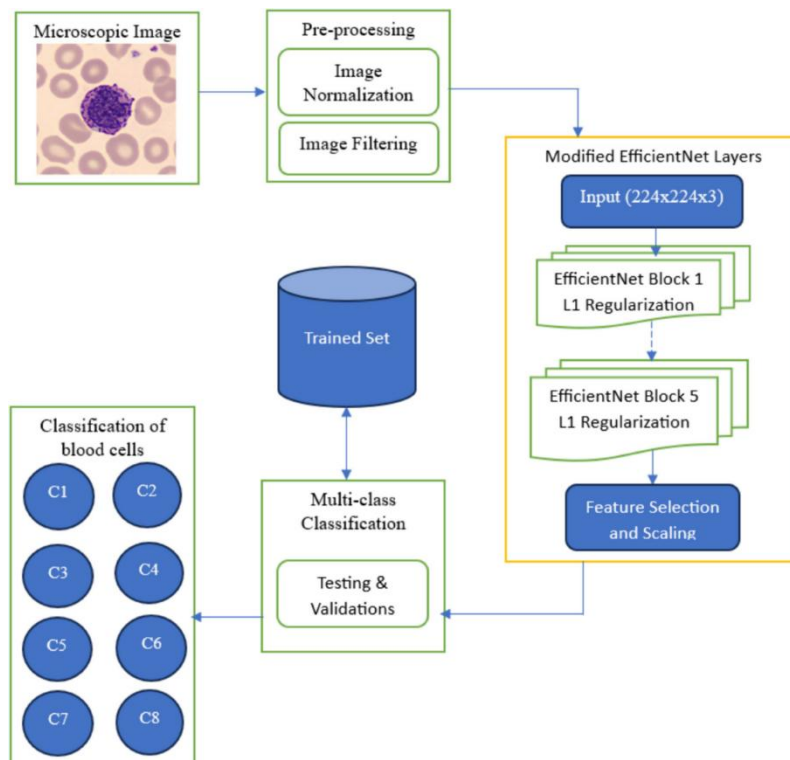
Project Name: HematoVision – Blood Cell Classification

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1. Overview

The HematoVision system is designed to **automatically classify blood cells** and generate reports for doctors and hematologists. It uses **AI-powered image processing**, cloud storage, and a web/mobile interface to improve lab efficiency, reduce errors, and expand accessibility.



Data Flow

1. **Blood Sample Upload:** Lab technician uploads blood smear image.
2. **Image Preprocessing:** AI preprocesses image using OpenCV techniques.
3. **Classification & Detection:** AI model classifies RBC, WBC, Platelets, flags abnormal cells.
4. **Data Storage:** Results and reports stored in MongoDB Atlas.
5. **Report Generation:** Detailed report with counts, abnormalities, and visual charts created.
6. **User Access:** Doctors and hematologists access reports via web/mobile interface.