DEBDEEP SANYAL

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OBJECTIVE

Android and AI/ML Engineer with **3 years of experience** building production Android systems and computer vision solutions. Experienced in real-time video analytics, model integration, and edge deployment, with a focus on scalable and reliable products.

SKILLS

Programming	Kotlin, Java, Python, XML
Android Engineering	Android SDK, Jetpack Compose, MVVM, RESTful APIs, SQLite, Firebase
Computer Vision	OpenCV, ML Kit, TrackNet, InsightFace, DeepFace
Deep Learning	CNN-based models, Object Detection and Tracking, Face Recognition
Sequence & Temporal Models	LSTM, BiLSTM, Transformer-based architectures
Model Training & Optimization	PyTorch, ONNX, TensorFlow Lite, CoreML, Quantization, Edge Deployment
Video & Media Processing	RTSP pipelines, GStreamer, FFmpeg, GPU-accelerated inference
Data Engineering	Dataset collection, annotation, validation, bias analysis
Developer Tools	Android Studio, Git, Python-based training pipelines, Google Cloud Console
System Skills	Multithreading, background execution, camera pipelines, performance tuning

EXPERIENCE

Android & AI Systems Engineer — February 2022 – Present
Vareli Tecnac Pvt. Ltd. — *Kolkata, India*

- Took ownership of multiple production mobile products, handling development, release, and post-deployment stability.
- Designed scalable mobile workflows with a strong focus on performance, reliability, and user experience.
- Integrated real-time data and media streams into applications, ensuring low latency in live environments.
- Worked closely with applied ML components to integrate inference outputs into user-facing features.
- Focused on performance tuning, background execution optimization, and on-device processing.
- Coordinated with backend, QA, and hardware teams to deliver end-to-end production systems.

PROJECTS

Play–Pause–Post (PPP): AI Sports Replay & Analytics Platform
Production-grade sports analytics and decision-support platform for badminton and racket sports.

- Implemented live ball and shuttle tracking systems with continuous model tuning for real-match conditions.
- Curated and annotated training datasets using **Roboflow** to ensure consistent production inference quality.
- Deployed **TrackNet-based tracking** with **90%+ accuracy** and integrated paddle detection.
- Implemented **court keypoint detection** and geometric mapping to localize players, ball, and bounce points.
- Encoded **game rules logic** to determine rally outcomes, scoring, and valid play states.
- Integrated an automated **line-calling system** using bounce location and court geometry.
- Extended line-calling and replay insights to an **Android Watch application** for real-time officiating.
- Optimized inference pipelines for **iOS/CoreML and GPU execution** to support low-latency replays. (Play Store Link)

CCTV-Based Face Recognition & Attendance Analytics System
Large-scale surveillance analytics system for automated employee attendance and insights.

- Implemented a **custom face recognition model** trained on **InsightFace and DeepFace backbones**.
- Designed real-time face analytics pipelines for high-volume CCTV feeds.
- Built reliable video ingestion using **GStreamer and RTSP pipelines**.
- Automated attendance tracking across multiple camera streams with temporal validation.
- Generated **heatmaps, headcounts, and time-based insights** for operational analysis.
- Improved robustness against occlusion, lighting variation, and pose changes in live environments.

V-Commute
Enterprise Android platform for employee commute tracking, attendance, and travel allowance management.

- Implemented geofenced real-time commute tracking with background execution optimization.
- Built **dynamic TA (Travel Allowance) calculation** based on vehicle type, distance, and usage patterns.
- Designed **automatic price management** with hierarchy-wise approval and finance validation workflows.
- Integrated **biometric and face-based authentication** with **99%+ accuracy**, anti-spoofing, and offline support.
- Developed a **lightweight on-device model** to ensure reliable authentication in low-connectivity environments. (Play Store Link)

V-Fleet
Enterprise fleet and vehicle operations management platform.

- Built an **offline-first architecture** to support uninterrupted fleet operations in low-network regions.
- Implemented secure backend synchronization for vehicle, trip, and usage data.
- Enabled real-time vehicle status tracking and operational insights.
- Designed scalable data workflows for fleet monitoring and reporting. (Play Store Link)

V-Asset
Enterprise Android solution for secure asset lifecycle and inventory management.

- Implemented JWT-based authentication with role-based access control.
- Integrated QR and barcode scanning using ML Kit for rapid asset identification.
- Implemented audit trails and asset history tracking to support compliance and traceability. (Play Store Link)

iCan
Accessibility-focused Android application designed for **deaf users**.

- Built **sign-language–based storytelling videos** to support visual learning.
- Integrated **speech-to-text** and **text-to-speech** for two-way communication support.
- Designed an **assignment submission workflow** to track learning progress and engagement.
- Led a cross-functional team of 4 developers from design through delivery. (Play Store Link)

EDUCATION

Master of Technology (M.Tech) in Computer Technology (AI & Data Science) 2024 – Present
Jadavpur University, Kolkata

Bachelor of Technology (B.Tech) in Computer Science and Engineering 2019 – 2023
I.K. Gujral Punjab Technical University, Punjab