ANURAG GORKAR

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SUMMARY:

Software Engineer with 2+ years optimizing high-scale systems handling 200M+ records monthly. Reduced ML pipeline execution 75% (8hr to 2hr) and achieved 70% latency reduction through optimized caching and service decomposition. Expertise in distributed systems (Python, Java, Spring Boot), real-time data pipelines, and LLM integration (GPT-4, Redis).

WORK EXPERIENCE:

Full Stack Software Engineer, *IEC Labs, NCSU, Raleigh, NC* *06/2025 - Present*

- Optimized monolithic educational platform by decomposing into 3 **microservices** (Auth, Tutoring, Analytics) with **Spring Boot** and **Docker**, scaling AI tutoring service to handle 3x peak loads while reducing response time by 70%
- Integrated **OpenAI GPT-4** with **Redis** caching and fallback strategies for personalized tutoring, reducing API costs by 60% and latency to sub-200ms, with graceful degradation when API limits reached
- **Resolved** SPA race conditions through iframe-based isolation for third-party library integration, implementing **message bridge** eliminating polling delays by 100%, enabling stable loading for 100+ concurrent sessions
- Implemented database query optimization with **TTL-based caching** and **Angular** lazy loading, conducting performance testing to reduce page load times by 78% (from 1.8s to 400ms) across all components

Software Research Engineer, *Performing Arts & Technology, NCSU, Raleigh, NC* *01/2025 - 05/2025*

- Built real-time data pipeline with **Python** and **PyTorch**, solved frame drops issue through multithreaded ping-pong buffer implementation, improving video synchronization accuracy by 90% with stable 30 FPS for multiple cameras
- Developed high-performance computer vision system utilizing **MediaPipe**, detecting 21 hand keypoints at 30 FPS with sub-50ms latency through **SIMD** optimizations, improving detection accuracy from 70% to 95%
- Engineered real-time performance analysis system comparing piano recordings against reference **PostgreSQL** database with Dynamic Time Warping, achieving 92% matching accuracy across 100+ concurrent sessions

Software Engineer (ML Platform), *Bajaj Finserv Ltd., Pune, India* *07/2022 - 07/2024*

- Optimized ML inference pipeline handling 200M+ customer records monthly, replacing **SQL**-based ETL with distributed **PySpark** jobs for feature extraction, reducing batch execution time by 75% (8hrs to 2hrs)
- Built end-to-end propensity scoring system using Spring Boot and **Databricks**, deploying RESTful APIs, delivering **XGBoost** predictions to business teams with monthly stakeholder reviews; achieved 85% code coverage
- Developed **survival analysis models** for loan default prediction integrating **Power BI** dashboards, enabling data-driven decisions reducing portfolio default rates 2% through improved customer targeting
- Managed distributed data pipelines processing 5TB+ monthly using **Spark** and MLflow, implementing model drift detection that reduced production incidents by 40% across multiple ML models

Research Engineering Intern, *Defence Research & Development Organization, Remote* *07/2020 - 09/2020*

- Developed a **machine learning framework** detecting image malware with false positive rates of 6%, with research published at *IEEE Big Data 2020 conference*
- Implemented **TensorFlow**-based image classification pipeline for steganography detection, integrating automated metadata extraction with **Python**, achieving 92% precision
- Built secure image analysis pipeline with React frontend and Django REST Framework, achieving 86% malware detection accuracy, implementing sandboxed Docker containers with sub 30-sec average processing time

SKILLS:

Languages: Python, Java, TypeScript, JavaScript, SQL, C++

Backend & Data: Spring Boot, Django, FastAPI, PostgreSQL, Redis, PySpark, Kafka, Microservices

Frontend & ML/AI: React, Angular, PyTorch, TensorFlow, OpenAI/Claude APIs, LangChain, XGBoost

Infrastructure: AWS, Docker, Kubernetes, CI/CD, Prometheus, Git, Databricks

EDUCATION:

North Carolina State University | Raleigh, NC | MS Computer Science *08/2024 - 05/2026 (Expected)*
Courses: DevOps, Software Engineering, Object-Oriented Programming, Internet Protocols *GPA: 4.0/4.0*

Pune Institute of Computer Technology | Pune, India | BE Computer Science *08/2018 - 05/2022*
Courses: Computer Networks, Operating Systems, Data Structures, Web Technology, Database Systems *GPA: 9.6/10.0*

PROJECTS:

CoviCare: A Secure Vitals Collection and Diagnosis Application ***Flutter | IoT | TensorFlow | Firebase | SQLite***

- Developed Raspberry Pi-based IoT device capturing patient vitals with secure transmission to **Flutter** mobile app; implemented **CNN/U-Net** models for COVID-19 CT scan diagnosis achieving 92% accuracy

SOS: Emergency Car Accident Care System ***Python | Raspberry Pi | React | Java (Android) | Firestore | Node***

- Built SOS, a **Raspberry Pi-**powered accident detection system with gyroscope/accelerometer/GPS sensors, real-time **Firestore** alerts to emergency contacts via mobile app, and containerized **Node.js** backend