PRINCE KUMAR

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New Delhi, Punjab, India

Education

CT University   **Ludhiana, Punjab**
Bachelor of Technology in Computer Science Engineering – CGPA: 8.67/10.0   *2020 – 2024*
- **Gold Medalist**: Highest CGPA in School of Engineering & Technology (CSE - AI)

Technical Skills

Languages & Frameworks: JavaScript, TypeScript, Python, React 19, Next.js, React Native, Node.js, Express.js, Fastify
Frontend Technologies: Redux, Zustand, Vite, Tailwind CSS, Material-UI, Bootstrap, Radix UI
Web3 Basics: Web3.js, Ethers.js, Wallet Integration, MetaMask, Smart Contract Interaction
Backend & Databases: MongoDB, PostgreSQL, Prisma, Redis, RabbitMQ, WebRTC, Socket.io, RESTful APIs
Cloud & DevOps: AWS (EC2, ECS, S3, IAM, CloudWatch), Docker, Jenkins, CI/CD, Auto Scaling, Kubernetes
Tools & Practices: Git, GitHub, Jira, Agile/Scrum, Linux, Version Control

Professional Experience   2+ Years Experience

Full Stack Developer   **Jun 2023 – Present**
Sensation Software Solutions Pvt. Ltd.   *Mohali, Punjab*
- Led development of **TraceVenue** multi-tenant B2B2C venue booking platform using **MERN stack** with **Socket.IO** for real-time booking synchronization, automated proposal workflows, and **JWT authentication** with role-based access control across customer, venue admin, and super-admin roles, scaling to handle **10,000+ venue bookings**; deployed on **AWS EC2** with **Docker** containerization and **S3** for file storage
- Architected scalable **College ERP (CERP)** frontend platform using **React 19** and **TypeScript**, supporting **17+ academic and administrative modules** with **1,300+ component files**; led team of **4–6 developers** defining frontend architecture, component contracts, and performance standards
- Designed **TailUX**, a custom design system on **TailwindCSS 4**, reducing UI development time by **40%**; built intelligent **Exam Seating Planner** with visual grid-based allocation, drag-and-drop assignment, and **PDF/Excel exports**
- Engineered **SensationCRM (LeadNest)** platform using **React 19, Vite**, and **TailwindCSS** with lead pipeline management, drag-and-drop form builder, role-based access control, and **TanStack Table** for handling **10,000+ records** with Excel/PDF export and fuzzy search capabilities
- Built **AppyPay** digital payments platform with responsive merchant dashboard using **Material-UI** and reusable compound components; implemented centralized **Redux Toolkit** state management for merchant onboarding, KYC verification, and payment method integration, reducing code duplication and onboarding time by **40%**
- Developed and shipped **3 enterprise GSSC systems** (Accommodation, Vehicle, and Complaint Management), reducing manual operational effort by **50%** and scheduling conflicts by **40%**; built interactive analytics dashboards for **Supra.tools** using **Next.js** and **Chart.js**, visualizing complex feature matrices and reducing stakeholder analysis time by **40%**
- Integrated real-time communication features: **Twilio Voice SDK** for calls, **WhatsApp messaging API**, Firebase notifications, **SignalR** live updates, **ApexCharts** dashboards, multi-language support (**i18n**), and **Sentry** error monitoring achieving **99.9% uptime**
- Implemented **role-based access control (RBAC)**, **JWT authentication**, and secure API endpoints handling **50,000+ API requests daily** with optimized database indexing and **Redis caching** strategies

Software Developer Intern   **Jan 2023 – Jun 2023**
Sensation Software Solutions Pvt. Ltd.   *Mohali, Punjab*
- Built RESTful APIs and React components for **TraceMenu** QR-based restaurant management system, automating order processing and improving operational efficiency by **30%** with real-time kitchen display integration deployed to **50+ restaurants**
- Implemented **Redux store** for cart management with intelligent item aggregation—automatically incremented quantity for duplicate items and maintained cart persistence across page refreshes, reducing redundant API calls
- Utilized **MongoDB transactions** to ensure data consistency across orders, payments, and inventory updates; implemented automatic rollback mechanism on payment failures to maintain database integrity
- Optimized search functionality with debouncing techniques reducing API calls by **60%**; implemented real-time updates via **Socket.IO**, pagination, and email notifications using **Nodemailer**
- Integrated **Cloudinary** for image optimization and CDN delivery achieving **25% reduction** in system response time and improved page load performance

Key Projects

Virtual Focus Room (Web + Mobile) | *React 19, React Native, WebRTC, Socket.io*
- Built full-stack real-time virtual co-working platform with **P2P video/audio via WebRTC**, screen sharing, collaborative whiteboard, and chat supporting concurrent sessions with tiered permissions (guest/free/premium)
- Implemented custom **Socket.io signaling server** and complete **WebRTC flow** (offer/answer/ICE candidates) using STUN servers; utilized **RTCRtpSender.replaceTrack** for seamless screen-share toggling without peer renegotiation
- Developed cross-platform experience with **React Native mobile app** and responsive web client; designed VideoGrid component with pinning, spotlight mode, and productivity tools (Pomodoro timers, todos, ambient sounds)
- **⧉ Live Web | ⍥ GitHub**

AlgoForge Studios – Enterprise LMS | *Next.js 15, TypeScript, MongoDB, AWS S3*   **⧉ Live | ⍥ GitHub**
- Designed production-ready Learning Management System for EdTech institute supporting **hybrid learning** (online + offline) with polymorphic MongoDB schemas, **JWT-based RBAC**, and automated CI/CD pipeline
- Achieved **60% reduction in server load** by implementing AWS S3 for video storage and CloudFront CDN for content delivery; optimized video streaming with adaptive bitrate and lazy loading
- Built comprehensive course management with curriculum builder, assignment tracking, grading system, and analytics dashboard serving **1,000+ students** with 99.5% uptime

DrawIO – Collaborative Whiteboard | *Next.js 14, TypeScript, ConvexDB, React Flow*   **⧉ Live | ⍥ GitHub**
- Built real-time collaborative infinite canvas with **ConvexDB** for instant synchronization, **CRDT-based conflict resolution**, live cursor tracking, and efficient viewport culling for rendering **1,000+ elements**
- Implemented drawing tools (pen, shapes, text), layer management, undo/redo with command pattern, and multi-user presence indicators supporting **50+ concurrent collaborators**

CodeForge (cloud based IDE) | *React, TypeScript, Node.js, Docker, Zustand, WebSockets*   **⍥ GitHub**
- Dynamically provisions secure Linux containers for each project using **Dockerode** ensuring complete isolation and consistency; supports multiple development environments with custom configurations
- Built full-featured in-browser terminal using **xterm.js** connected via **WebSockets** allowing shell command execution, package installation, and server start-up with real-time output streaming
- Developed real-time file explorer with complete CRUD operations, powered by **Chokidar** for instant synchronization between UI and backend

ErgoSmart – AI Posture Coach | *ReactJ, TensorFlow.js, MediaPipe BlazePose, WebGL*   **⧉ Live | ⍥ GitHub**
- Built client-side AI posture correction app using **TensorFlow.js** and **MediaPipe BlazePose** achieving **30fps real-time inference** with 33-point body landmark detection and zero backend dependency
- Implemented WebGL acceleration, angle calculation algorithms for posture analysis, and real-time feedback system with audio/visual alerts improving user posture by **35%** in usability testing

DevOps & Cloud Expertise

AWS Cloud Fundamentals & Infrastructure   **⍥ GitHub**
- Deployed and managed **Node.js applications** on **AWS ECS (Fargate)** using containerized workloads; built and pushed **Docker images** to **Amazon ECR** with secure ECS service configuration and task definitions
- Automated application deployment using **CI/CD pipelines with Jenkins**, reducing manual deployment effort; configured **AWS EC2 instances** for application hosting with environment setup and process management
- Utilized **Auto Scaling Groups (ASG)** to handle traffic spikes and improve application availability; implemented **AWS IAM** roles and policies for secure service-to-service communication with least-privilege access
- Integrated **Amazon CloudWatch Logs** for centralized logging and monitoring of ECS tasks and services; utilized **Amazon S3** for static asset storage, backup solutions, and configuration management
- Worked with **Docker** to containerize Node.js applications and manage multi-environment builds; familiar with **Kubernetes** concepts including Pods, Deployments, Services, and container orchestration
- Followed **Agile/Scrum methodology** using **Jira** for sprint planning, task tracking, issue management, and collaborative development workflows