

SPARSH SHAH

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Technical Skills

Languages: JavaScript, TypeScript, C++, Python, HTML/CSS

Frameworks/Tools: React.js, Node.js, Express.js, MongoDB, AWS, Postman, Git/GitHub, React Native, Socket.IO

Experience

Full Stack Developer — Scouting Intelligence Platform <i>UWAT VEXU Robotics Design Team</i>	Oct 2025 – Present Waterloo, ON
<ul style="list-style-type: none">Developing a full-stack scouting system using FastAPI, React, OpenCV, and Docker that analyzes livestream footage to track advanced metrics including score rate, jam frequency, defense effectiveness, and driver efficiency.Creating responsive visual dashboards and scalable REST API pipelines that support opponent profiling and historical comparison across multiple competitions.	
Software Developer <i>Fort McMurray Sanatan Mandir</i>	Sep 2023 – Jan 2024 Fort McMurray, AB
<ul style="list-style-type: none">Revamped and maintained the community website using HTML, CSS, and JavaScript, serving 300+ active membersImplemented a mobile-first responsive design, improving accessibility for 70% of visitors browsing on phonesBuilt and integrated a secure contact form with real-time validation and error handling, improving communication by reducing spam submissions, and providing a smoother user experience for community members on the website	
Robotics Software Lead <i>Westwood Robotics Team 221X — Ranked 1st in Alberta</i>	Sep 2022 – May 2025 Fort McMurray, AB
<ul style="list-style-type: none">Programmed an autonomous competition robot using C++, setting a provincial record in autonomous competition points and helping the team win 1st place in AlbertaDeveloped odometry-based autonomous navigation system, and implemented advanced PID control algorithms for precise arm positioning, motion stabilization, and consistent task executionCreated binary search PID tuning algorithm, reducing tuning time by 50% and improving development efficiency	

Projects

⌚ Vaultify – Music Import & Streaming Platform <i>React.js, Express.js, MongoDB, AWS S3</i>	
<ul style="list-style-type: none">Built a full-stack music streaming platform enabling users to import Spotify playlists and stream ad-free MP3s from AWS S3, serving 20+ concurrent usersImplemented automated YouTube audio extraction with direct AWS S3 uploads, eliminating server storage bottlenecks and reducing infrastructure costsDesigned REST APIs with Express.js and MongoDB to prevent duplicate downloads, and architected a scalable cloud storage solution using AWS S3, reducing playlist re-import times by 90% and enabling seamless streaming	
⌚ AI-Powered Study Habit Tracker <i>React.js, Tailwind, FastAPI, Redis, MongoDB, MediaPipe, ElevenLabs</i>	
<ul style="list-style-type: none">Built an AI-driven study habit tracker using MediaPipe for real-time face and hand detection to monitor focus, distractions, and face-touching behaviorIntegrated ElevenLabs API for voice feedback and Gemini API to generate AI-powered study insights, and implemented secure authentication with JWT and MongoDB to store user sessions and display past study statsDeveloped a responsive React frontend and optimized FastAPI backend with Redis caching for smooth real-time processing and low-latency feedback, improving data retrieval by ~90%	
⌚ ChatKey – Cross-Platform Messaging App <i>React Native, Expo, Firebase Auth, Firestore, NativeWind</i>	
<ul style="list-style-type: none">Built a lightweight cross-platform messaging application using React Native, supporting iOS and AndroidImplemented Firebase Authentication and Firestore database for real-time messaging, enabling instant message synchronization across devicesDesigned a key-based room creation system and architected a scalable NoSQL data structure in Firestore, enabling instant room creation, real-time messaging performance, and offline capability	

Education

University of Waterloo <i>BASc, Systems Design Engineering</i>	Expected Jun 2030 Waterloo, ON
<ul style="list-style-type: none">Relevant Coursework: Data Structures and Algorithms, Digital Computation (C++), MATLAB, Solidworks	