

# SPARSH SHAH

780-799-5514 ss6shah@uwaterloo.ca linkedin.com/in/sprsh github.com/OpsEclipse sprsh.ca

## 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

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

## Projects

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

## Education

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