Tanishq Saxena

2nd Year Undergraduate
Department of Computer Science and Engineering
Indian Institute of Technology Kharagpur

✉ tanishqsaxena.24@kgpian.iitkgp.ac.in
⌨ saxenatanishq
in Tanishq Saxena

Academic Qualifications

Year	Degree/Certificate	Institute	CGPA/%
2024 - Present	4 year B.Tech course in Computer Science and Engineering	Indian Institute of Technology, Kharagpur	9.38/10
2024	Class XII (CBSE)	Saarthi International School, Delhi	95.4%
2022	Class X (CBSE)	VBPS , Noida	98.6%

Internships & Projects

Target-Biased Obstacle Avoidance | Python, NumPy | AGV Research Group Project *March 2025*
- Enhanced the Follow the Gap (FTG) algorithm to navigate toward specific waypoints, addressing the limitations of traditional FTG which only follows the largest open space.
- Authored a custom potential function to select the optimal path, intelligently weighting gaps based on their width, distance, and angular proximity to the target.

Civix | React.js, Tailwind CSS, Node.js, PostgreSQL | SIH Project 2025 *March 2025*
- Designed and developed a full-stack web application enabling citizens to report local civic issues with geotagged images, descriptions, and live map locations.
- Implemented role-based access with secure JWT authentication, allowing citizens to up-vote and track issues while admins manage and update their statuses through a centralized dashboard.
- Integrated an interactive map interface (Leaflet.js) and a structured issue workflow (Open → In Progress → Resolved), optimizing database design and backend APIs for scalability and performance.

SLAM Localization Pipeline for AutoDRIVE | C++, ROS2, Docker | AGV Research Group Project *Sep 2025*
- Configured a complete ROS2 simulation pipeline for the AutoDRIVE ecosystem, integrating Docker containers with NVIDIA GPU acceleration and the ydlidar drivers.
- Authored a custom C++ ROS2 node to broadcast the complete TF transform tree, providing the dynamic odom to base link pose estimate and static transforms for visualization in RViz2

Positions of Responsibility

Undergraduate Researcher | Autonomous Ground Vehicles (AGV) | IIT Kharagpur *Apr'25 - Present*
- Selected for the Software/AI team based on a project-based evaluation in autonomous path planning, sparse optical flow, and 3D image reconstruction.
- Joined the SLAM subteam and completed a multi-stage task marathon to build practical expertise in core localization algorithms; now actively developing navigation solutions with ROS.

Associate Member | Kharagpur Blockchain Society | IIT Kharagpur *Dec'24 - Oct'25*
- Contributing to blockchain education initiatives through workshops, collaborative projects, and hands-on learning experiences in decentralized technologies

Member | CodeClub | Department of Computer Science and Engineering | IIT Kharagpur *Mar'25 - Present*
- Participating in algorithm workshops, fortnightly coding contests, and skill development initiatives aimed at nurturing programming abilities

Skills and Expertise

Programming Languages: Python | JavaScript | C | C++ | HTML | CSS | SQL
Frameworks/Libraries: Django | Node.js | Express | ROS2 | NumPy | Bootstrap
Tools and Databases: SQLite | Git | Docker| GitHub | Postman | Linux

Awards and Achievements

- AIR 341 in JEE Advanced 2024 among 180,200 candidates, securing admission to IIT Kharagpur
- AIR 1152 in JEE Mains 2024 among 1,415,110 candidates nationwide
- State Top 1% in National Standard Examination in Chemistry (NSEC) 2023