

ASHOK KUMAR CHAUDHARY

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EXPERIENCE

- General Autonomy** Bengaluru, India
Lead Robotics Engineer May 2024 - Present
 - Led the **Human-Machine Interfaces** stack for autonomous ground and aerial platforms: ground control stations, teleoperation consoles, and an interactive mission planner; **12 devices** deployed in the field.
 - Built **GA-MSG**, a **ZeroMQ/gRPC** pub-sub middleware (lightweight ROS replacement) with C++/Python bindings, TCP/UDP and shared-memory transports for high-bandwidth hardware streams, achieving **sub-80 μ s** latency.
 - Bridged GA-MSG to any **MAVLink** drone over **Doodle Labs** mesh radio, with bidirectional translation, heartbeat handling, and **link-loss fail-over**.
 - Added low-latency **mesh video streaming** with adaptive bitrate driven by RSSI/packet-loss (**GStreamer/RTSP**), improving stream stability under degraded link conditions.
 - Shipped the teleoperation stack: bimanual **6-DOF** arm and dexterous-hand retargeting with a force-feedback gripper (**pyroki**, FK/IK, motion capture).
 - Wrote bionic-actuator firmware (**EtherCAT/CAN**) for high-frequency motor control loops running at **200 Hz** with PI/PD and hybrid Kp-Kd control.
- RISA Labs Inc.** Bengaluru, India
Software Developer Aug 2023 - May 2024
 - Built and owned backend services (**Python/FastAPI**), from data models and business logic to third-party integrations end-to-end.
 - Cut **API latency by 30%** by reworking hot query paths via indexing, query restructuring, and caching.
 - Lifted **throughput by 16%** by moving blocking work to async worker pipelines, while holding reliability under production load.
- Testbook** Navi Mumbai, India
Software Developer Jan 2022 - Jul 2023
 - Implemented **SSR** on high-traffic core pages, improving **Largest Contentful Paint (LCP)** and Time to Interactive.
 - Led production deployments end-to-end as primary **Release Owner**, ensuring zero-downtime application rollouts.
- Siemens Technology & Services** Bangalore, India
Software Developer Intern May 2019 - Jul 2019
 - Built a real-time model validation & visualization service that cut dev/deployment time **from days to seconds**, automating **CI/CD** pipelines on **AWS**.

EDUCATION

- IIT Kanpur** Kanpur, India
B.Tech-M.Tech Dual Degree - Electrical Engineering; GPA: 8.0/10 2016 - 2021

SKILLS SUMMARY

- Languages:** C++, C, Python, TypeScript, JavaScript
- Robotics & Embedded:** ROS, MAVLink, ArduPilot, ZeroMQ, gRPC, URDF, FK/IK, pyroki, EtherCAT, CAN
- Streaming & Comms:** GStreamer, WebRTC, WebTransport, WebSockets, Doodle Labs, RTSP, UDP
- Full-Stack & Graphics:** FastAPI, Flask, Next.js, React.js, Electron, Three.js, OpenCV
- Cloud & Tools:** AWS, GCP, MongoDB, Git, Linux, System Design

HONORS AND AWARDS

- AIR 1996** in JEE Advanced 2016.
- 3rd Prize**, DJI Robomasters AI Challenge (Montreal, Canada). Only Indian team.
- Gold Medal**, Inter-IIT Tech Meet 2018: Technologies for Soldier Support (DRDO).
- Gold Medal**, Inter-IIT Tech Meet 2018: BeTic Innovation Challenge.
- Star-Performer Award**, Testbook (Q3 2022-23).

PAPERS AND PATENTS

- "Chasing and Aiming of a Moving Target"**, IEEE RO-MAN 2019, New Delhi.
- Lightweight UAV gripper for fruit harvesting – **US Patent Granted**.
- Autonomous aerial grasping system for agriculture – **US Patent Granted**.