Pushpak Jain

Aerospace Systems • Computer Science • Electrical Engineering • Cybersecurity

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I build working software and hardware projects across aerospace, sensing, embedded systems, AI, and security.

EXPERIENCE

Kery ZK LLC – AI / Sensor Safety Engineering 2026–Present

- Prototype radar-safety features for mmWave systems, including calibration checks, event logs, edge inference, and review screens.
- Turn noisy sensor readings into timestamped event timelines for testing, debugging, and failure review.
- Write test notes and calibration records so hardware and software changes can be compared between builds.

UVA Applied AI Collaboration – Lip-reading and motion prototypes 2024–2025

- Worked with Prof. Eric Martin on lip-reading and motion-detection prototypes using Core ML, Apple Neural Engine, offline inference, and noise tests.
- Tuned the prototype toward a measured 10 ms response target for real-time use on the device.

UPCOMING

Cybersecurity and Infrastructure Security Agency (CISA) – Cybersecurity / AI internship offer Incoming

SELECTED PROJECTS

Deployed Child-Safety Application – product engineering, safety UX, reliability 2025–2026

- Built a child-safety app used by over 300,000 people, covering product flows, reliability fixes, privacy-focused UX, and user feedback.
- Took the project from prototype to public release while addressing issues reported by users.

Tangible Light / Mist Interaction System – LiDAR, optics, haptics, embedded systems 2026

- Built a mist-based optical chamber that makes light visible in selected regions while controlled airflow keeps other regions clear.
- Designed a LiDAR-tracked glove that reads hand position and maps contact with the light volume to fingertip and palm pressure feedback.
- Connected haptic actuators, mist valves, airflow control, optical alignment, and real-time logic into one working prototype.

Independent Turbocharger-Based Jet Engine – aerospace prototype, CAD, sensors 2026

- Built a physical turbocharger-based jet-engine prototype from concept to hardware, including CAD/cutaway models, part sourcing, and assembly planning.
- Made 3D part-location models showing engine sections, support systems, instrumentation, and purchasable components in one layout.

LRAI / RadHAR Movement Detection – React, TypeScript, MediaPipe, Vercel 2026

- Built a browser movement-detection app with camera input, pose landmarks, confidence, FPS, latency, and live activity labels.
- Classified walking, standing, squatting, jumping, and jumping jacks while keeping the interface fast and readable.

Silent-Speech / Lip-Reading AI – Core ML, Apple Neural Engine 2025–2026

- Built an iPhone-focused silent-speech prototype for offline lip-reading inference, with privacy, latency, and on-device use as the main constraints.
- Kept inference local instead of cloud-based so input stayed private and response time stayed low.

AWARDS & RECOGNITION

- CyberStart America National Cyber Scholar; Certiport Networking Certification.
- 4th place, MIT iQuHACK SuperQuantum; Top 100, MIT BlueQubit; top-10 Radford Capture the Flag finisher across consecutive years.

SKILLS

Aerospace	Propulsion prototypes, turbocharger-based engine layout, CAD assemblies, cutaway models, BOM sourcing, thermal/mechanical planning, instrumentation layout
Computer Science	Python, TypeScript, JavaScript, C++, Java, SQL, React, Vite, GitHub, Linux, API work, data pipelines, real-time telemetry
Electrical / Embedded	Microcontroller prototyping, PCB design, KiCad, sensor wiring, actuator control, signal logging, calibration routines, hardware-software integration
AI / ML	PyTorch, TensorFlow, Core ML, MediaPipe, pose estimation, edge inference, model tuning, offline deployment, latency testing
Sensors / Controls	mmWave radar, LiDAR tracking, haptic feedback, optical scattering, mist/airflow control, sensor fusion, event detection, feedback loops
Cybersecurity	Vulnerability analysis, packet analysis, Wireshark, Nmap, Metasploit, CTF practice, network fundamentals, secure testing notes
Engineering Tools	CAD, instrumentation, Xcode, VS Code, Vercel, Firebase, technical documentation, test logs, prototype demos