Yash Tiwari

8369087569 | yashtiwari9182@gmail.com | THANE, Maharashtra

Skills

- **Programming Languages:** Python, C++, C
  Robotics & Embedded Systems: ROS, Arduino, Raspberry Pi, Qt
  AI & Computer Vision: TensorFlow, PyTorch, scikit-learn, OpenCV, YOLOv8, Tesseract
  Software & Systems: FastAPI, Flask, Docker, Git, Linux, GCP

Profile & Links

- **Github - github.com/pyandcpp-coder**
- **Linkedin - linkedin.com/in/yrevash/**

Project

6-DOF Robotic Hand

- Designed and built a robotic hand with **six degrees of freedom (DOF)**, integrating servo motors and custom control circuitry.
- Implemented inverse kinematics for precise finger articulation and grasping.
- Controlled via Arduino and Python interface, demonstrating dexterity in object manipulation.
  Tech: C++, Python, Arduino, Embedded C, CAD (SolidWorks)

Autonomous Car (Raspberry Pi)

- Developed a miniature self-driving car using **Raspberry Pi, Pi Camera, ultrasonic, and IR sensors** for perception and navigation.
- Implemented lane detection and obstacle avoidance with OpenCV and sensor fusion.
- Integrated real-time decision-making for path planning, achieving semi-autonomous driving in structured environments.
  Tech: Python, OpenCV, Raspberry Pi, Sensors (Ultrasonic, IR), Linux

Aadhaar Processing API (Selected AI Project)

- Architected a high-performance document processing system with Redis-based model caching and distributed memory management.
- Automated Aadhaar card detection using **YOLOv8 + multilingual OCR**, achieving 95%+ verification accuracy.
- Deployed as an async FastAPI service with sub-second inference latency, reducing manual processing by 80%.
  Tech: Python, FastAPI, YOLOv8, OpenCV, Tesseract, Redis, Git

Experience

Google Summer Of Code - SAT
Software Developer | 05/2025 - Present

- **Architected high-performance real-time gesture processing system** for professional musicians and live performers, porting Paura Gestures Library to Avendish runtime with optimized C++ implementations achieving sub-millisecond latency for critical live performance scenarios.
- **Implemented efficient multi-threaded worker processes** and memory management optimizations, enabling real-time sensor fusion and gesture recognition for interactive multimedia installations used by professional artists worldwide.
- **Enhanced core algorithms and data structures** for gesture-descriptor processing, improving detection stability by 30% while maintaining real-time performance constraints essential for live musical performances.

Qoneqt | Thane
Artificial Intelligence Engineer | 06/2025 - Present

- **Architected and deployed a scalable Aadhaar authentication pipeline** serving 20,000+ users on a social media platform, implementing **Redis-based model caching and distributed memory management** to load YOLOv8 models efficiently across multiple Linux servers, processing thousands of identity verification requests daily with **sub-second response times through intelligent caching strategies**, raising verification accuracy from 28% to 95% and reducing manual review time by 80%

- **Built high-throughput image processing infrastructure** handling concurrent authentication requests with async processing, implementing load balancing and queuing mechanisms to ensure sub-second response times during peak usage.
- **Led cross-functional design discussions** with frontend, backend, and QA teams to architect NLP-to-automation pipeline, defining system requirements, API specifications, and integration patterns for converting natural language test specifications into executable Maestro YAML workflows.
- **Deployed an LLM-powered mobile-app testing agent** with Ollama and Maestro across distributed Linux servers, boosting CI pipeline throughput by 40% and detecting 3× more critical bugs pre-release for a production application serving 20K+ active users.

Stamp 'IT Robotai & Solutions Pvt. Ltd | Thane
Embedded Software Engineer | 03/2025 - 05/2025

- **Optimized deep learning inference pipeline** on resource-constrained Raspberry Pi hardware, achieving 30+ FPS YOLO object detection at 720p through model quantization, memory optimization, and efficient C++ implementation using TensorFlow Lite.
- **Designed and implemented advanced CAD algorithms,** including a custom no-fit polygon algorithm for optimal material nesting, reducing material wastage by 12%, and saving significant manufacturing costs through geometric optimisation and computational geometry techniques.
- **Built comprehensive Qt-based desktop CAD application** for complex manufacturing processes, integrating real-time camera calibration, visualization tools, and automated geometric optimization workflows, reducing deployment setup time by 50%.

Education

New Horizon Institute Of Technology | THANE, Maharashtra
Mechatronics Engineering | 12/2026
GPA: 8.2/10

Relevant Coursework: Object-Oriented Programming, Data Structures & Algorithms, Control Systems, Embedded Systems, Machine Learning, Computer Vision, Robotics

Certificates & Awards

- **Robotics Club Lead & Member** – Led team projects including a **smart navigation system for visually impaired individuals** using sensor fusion and real-time obstacle detection; mentored juniors on embedded systems and robot design.
- **Winner – Local Robotics Competition** – Built a **path-following robot** using IR sensors and PID control, achieving first place among 20+ teams.
- **Team Lead & Runner-Up – ClearRoute Agentic AI Hackathon** – Led a 5-member team to develop a **real-time racing analytics system** with live data processing and AI-powered strategy recommendations, competing against 100+ teams nationwide.
- **Winner – Khistijam College Coding Hackathon** – Secured first place in a competitive programming contest focused on data structures and algorithms.

Certifications

- IBM Machine Learning Professional Certificate (Coursera)
- Applied Machine Learning (University of Michigan)
- Computer Science and Programming Foundations (University of London)