SHIVAM SHARMA

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SUMMARY

AI engineering graduate pursuing an MSc in Robotics & Autonomous Systems (AI). Skilled in ML/DL, computer vision, IoT, gesture interfaces, and cloud-scale AI systems. Actively seeking an internship in robotics software, AI/ML, computer vision, or data science.

EDUCATION

Master of Science in Robotics and Autonomous Systems (AI) May 2027
Arizona State University, Tempe, AZ 3.9 GPA
Bachelor of Technology in Artificial Intelligence Aug 2021- May 2025
Amity University, Noida, Uttar Pradesh, India 9.8/10 GPA

TECHNICAL SKILLS AND CERTIFICATIONS

Programming Languages: Python**,** SQL**,** C/C++**,** JavaScript

Machine Learning & Data: PyTorch**,** Transformers (Hugging Face)**,** TensorFlow**,** scikit-learn**,** Pandas**,** NumPy**,** XGBoost**,** LightGBM**,** CatBoost**,** MLflow**,** Optuna**,** Keras**,** Matplotlib.

Computer Vision & Robotics: OpenCV**,** ROS2**,** ONNX**,** MediaPipe**,** dlib

NLP: Transformers (Hugging Face)**,** spaCy**,** Sentence-BERT**,** NLTK

Certifications: Microsoft AI**,** Applied AI (IBM/Coursera)**,** Aerial Robotics (University of Pennsylvania)**,** Python for Data Science (NPTEL)

PROFESSIONAL EXPERIENCE

AI/ML Engineer January 2025–June 2025
Salesforce, Gurgaon, Haryana, India - Tech Stack: Python**,** PyTorch**,** TensorFlow/Keras**,** OpenCV**,** ONNX**,** MLflow**,** NumPy**,** Pandas**,** scikit-learn**,** librosa**,** Matplotlib

- Shipped a **real-time multi-attribute face analytics** service (age band, **emotion**, **attire**, nationality) by fine-tuning **MobileNetV2** and exporting to **ONNX**, enabling **30 FPS** with **<30 ms** per-frame latency and delivering **94–95% macro-F1** on a held-out set.
- Built a **driver drowsiness & distraction** system by fusing **blink-rate**, **PnP head-pose**, and a **CNN yawning detector**, achieving **0.92 F1** on **20+ hours** of **dash-cam video** and improving **safety** via **real-time alerting**.
- Developed a **multimodal emotion classifier** combining a **facial CNN** with a **BiLSTM** over **MFCCs** (female voice), reaching **91–94% accuracy** and accelerating iteration via automated labeling/augmentation (**SpecAugment**, **mixup**) with experiment tracking in **MLflow**.

Data Scientist Intern April 2024–June 2024
HCLTech, Noida, Uttar Pradesh ,India -Tech Stack: Python, scikit-learn, Optuna, SMOTE (imblearn), Pandas, NumPy, SHAP, Streamlit, Matplotlib

- Built an **early-warning churn score** for **500K+ customers** using **real-world signals**; **~25% improvement** over the prior approach at identifying likely churners.
- Built a **reusable scikit-learn pipeline** with **target encoding**, **SMOTE**, **time-aware cross-validation**, and **Optuna hyperparameter search**; produced a **model card** with **stability/fairness checks**.
- Explained drivers with **SHAP** and delivered a lightweight **Streamlit** dashboard for Ops; **reduced false positives by 18%** at fixed recall in **back tests**.

ACADEMIC PROJECTS

Agentic Robot Control via LLM/VLM (Prompt-to-Action) Sep 2025 – Dec 2025

- Built **agentic AI** pipeline turning **natural-language prompts** into parameterized **pick/place/rotate** skills (e.g., “pick the small blue block, rotate 90 deg, place on red block”); expanded **prompt templates**. *Tools/Languages:* **Python**, **PyTorch**, **OpenCV**, **ROS 2/ROS2 (rclpy/rclcpp)**, **inverse kinematics (IK)**, **gripper control**.
- Added **monocular depth estimation** for **z-aware scene understanding** and **kinematic planning**; composed **perception -> planning -> execution** with **safety checks** and **recovery** using **tf2** and **ROS 2 nodes**.
- Demonstrated precise **grasp/placement** across varied **size/color/rotation** constraints; instrumented runs with **rosbag2** and **ros2 launch**.

Dobot Magician: Agentic Tic-Tac-Toe (Vision + LLM Planning) Aug 2025 – Sep 2025

- Built **computer vision board-state detection**: **perspective correction**, **color/edge segmentation**, **AprilTag** corners, **camera calibration**; commanded **Dobot Magician** via **ROS 2/ROS2** for precise **X/O placement**. *Tools/Languages:* **OpenCV**, **AprilTag**, **ROS 2 (rclcpp)**, **tf2**, **Python**, **C++**.
- Orchestrated **perception -> planning -> actuation** with **Gemini LLM** via **function calls** (perceive_board, choose_move — **Minimax** + **alpha-beta**, execute_move); added **IK limits**, **safety bounds**, **robust recovery** for **illegal/ambiguous states**. *Tools:* **ros2 launch**, **rosbag2**, **ros2_tracing**.
- Achieved **~1.4 s p50 latency** and **<= 2 mm placement error** over **200 games**; **profiling** and **logs** validated stability.

ROS2 Gesture-to-Robot: Vision-based Tele-operation for Mobile Robots Jan 2025 – Apr 2025

- Implemented **real-time hand/pose interface** mapping **gestures** to **TurtleBot navigation** and **gripper** actions; **end-to-end latency ~55 ms**. *Tools/Languages:* **MediaPipe**, **OpenCV**, **ROS 2/ROS2 (Python/C++)**, **Gazebo**.
- Reached **>= 95% F1** on **custom gesture dataset** with **2.8 cm mean path error** in **simulation**; added **safety gestures** and **low-pass filtering** to reduce **jitter**.
- Delivered **>= 97% gesture-to-action reliability** and **<= 120 ms safe-stop** via **ROS 2 safety supervisor** (**debounce**, **Kalman smoothing**, **dead-man open-palm**), **BehaviorTree.CPP** gating of **cmd_vel/gripper**, and **QoS tuning** (reliable, sensor_data).