Sharvari Kamble

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Education

Bachelors of Engineering in Artificial Intelligence and Data Science **University of Mumbai**
(Mumbai, MH, India — 07/2023 to 05/2026) GPA: 8.99/10.0

- Core CSE topics: **Algorithms, Machine Learning, Deep Learning, Artificial Intelligence, Data Analysis, Data Visualization, DBMS, Computational Complexity, Statistical Analysis, NLP, Image Processing**, etc.
- Core Math Topics: **Discrete Mathematics, Calculus, Complex Variables, Regression, Probability**, etc.
- Achievements: Shortlisted for **Smart India Hackathon 2024**, 4th Place at **Innovation Junction**.

Technical High School Diploma in Computer Engineering **K. J. Somaiya Polytechnic**
(Mumbai, MH, India — 01/2020 to 06/2023) Percentage: 88.9

- Core CSE topics: **Data Structures, Computer Organization, Linux Administration, Software Engineering, Java, DBMS, Web Design, Operating Systems, Computer Architecture, Networks**.
- Achievements: Received sponsorship from **Mangal Agro, Buldhana** for the **Agricultural Drone** project, Featured in **K.J. Somaiya Polytechnic Tantravihar Magazine 2022-23**.

Work Experience

Carnegie Mellon University (USA) (04/2024 to present) [Remote] GitHub **Research Intern**

- Developed novel loss functions that enhanced model performance by up to **18% Dice coefficient** on **4D brain MRI datasets**.
- Researched and implemented **Jacobian-based regularization methods** to mitigate overfitting in MRI segmentation tasks, achieving a **12–18% improvement in Dice score** compared to baseline models.
- Processed **2D/3D medical image volumes** using **U-Net, V-Net** and integrated pipelines with **TensorFlow** and **NumPy**.

Julia SciML Open Source Contributions (Germany) (03/2025 to present) [Remote] GitHub **Research Intern**

- Modeled the **QArm Mini robotic arm** using **ModelingToolkit.jl**, defining kinematics and 6 DoF joint simulation for end-to-effector trajectory planning.
- Built an inverse kinematics solver for **real-time pick-and-place execution** within a **30 cm × 30 cm workspace**, maintaining precision below **0.01 rad**.
- Synchronized **MTK-based robotic simulations** with over **100 Blender animations** to visualize movement trajectories in real-time.

K. J. Somaiya Institute of Technology (India) (06/2022 to 08/2022) [onsite] **Computer Hardware Technician**

- Diagnosed and resolved 40+ hardware/network faults in routers, switches, and Ethernet systems.
- Reduced system latency by **30%** and improved fault recovery time by **25%** via performance profiling.
- Led a system overhaul improving reliability by **40%**, including upgrades to RAM, storage, and cooling units.

Projects

ShelfLifeNet: A Deep CNN-SVM Framework for Visual Spoilage Detection and Shelf-Life Prediction in Bread
(06/2024 – 10/2024) GitHub [Mentored by **Prof. Firdous Khan** from **University of Mumbai**]

- Engineered a 6-class **CNN+SVM hybrid classifier** using **1,200+ bread images**, achieving **90% classification accuracy**.
- Designed spoilage-localization framework (left, right, top, bottom) and deployed via **Flask web interface (<200ms latency)**; ongoing **mobile deployment using TensorFlow Lite.**

Publications

Kamble, S. (2025). SLRNet: A Real-Time LSTM-Based Sign Language Recognition System. *arXiv preprint arXiv:2506.11154*.

- Proposed **LSTM-based architecture** integrated with **MediaPipe Holistic**; achieved **86.7% validation accuracy** on webcam input for real-time **ASL recognition.**

Skills

Programming Languages: Python, JavaScript, Java, C++, C
Machine Learning Libraries: TensorFlow, PyTorch, Keras, Scikit-learn, Pandas, Numpy, Matplotlib, Seaborn
Database Technologies: MySQL, MongoDB
Other Tools: Jupyter Notebook, MATLAB, Git, GitHub Actions
Research Skills: Statistical Modeling, Data Visualization, Experimentation, Hypothesis Testing
Soft Skills: Team Collaboration, Leadership, Technical Writing

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Extracurriculars

- Led campus placement activities as **Placement Coordinator** at K. J. Somaiya Polytechnic, successfully facilitating **100% student placement** in core technical roles across software and hardware domains.
- Completed **100+ hours of volunteer service**, contributing to event coordination and public engagement at **Maker Mela** and **Gaatha – International Storytelling Festival**.