Jayant Patel

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Internship

Iron Willed Tech Ltd. **January 2025 – June 2025**
Software Developer Intern *Remote*

- Engineered core UI/UX features from the ground up for a new lifestyle fashion app, using Kotlin and Jetpack Compose to establish a modern and responsive user interface.
- Implemented the client-side integration of Firebase APIs for essential functions like user authentication and dynamic content, building the app's foundational data communication layer.
- Initiated a proof-of-concept feature by integrating Google's MediaPipe ML model to generate real-time face meshes, exploring its use for virtual try-on technology.
- Developed a scalable codebase using Clean Architecture and Clean Code principles, while preparing it for launch through robust error handling and agile development processes.

IIT Jammu **February 2024 – July 2024**
Research Intern *Jammu, Jammu & Kashmir*

- Researched and evaluated various YOLO models (v3-v8) for Personal Protective Equipment (PPE) detection on the CHV Dataset.
- Assessed and optimized a YOLOv8n model, achieving an **80.95%** reduction in model size and an **83.75%** reduction in parameters.
- The compressed model maintained high performance, with only a minimal drop of **3.18%** in precision, **5.71%** in recall, and **3.60%** in mAP@50 compared to the baseline YOLOv8n.

Projects

Text Behind Photo | *Python, FastAPI, React, ML (YOLOv8, SAM), CV* | *live demo* **May 2025**

- Developed a web application enabling text layering on images via a 2-stage ML pipeline (YOLOv8 detection, SAM segmentation) achieving an estimated **98%-99%** person segmentation accuracy.
- Built a full-stack solution with a Python FastAPI backend serving ML models and a React SPA frontend providing a real-time canvas editor with **8** customizable text options.

AI-Powered Book Reading Attention Monitor | *Python, PyTorch, OpenCV, YOLO, L2CS* | *link* **January 2025 - May 2025**

- Engineered a real-time system to monitor reader's visual attention using webcam feed, integrating L2CS for gaze estimation and a custom-trained YOLOv12s model for book detection (open/closed states).
- Developed a custom book detection model (YOLOv12s) by curating a dataset (Roboflow Universe + self-captured images), achieving an mAP of **0.87** on the validation set for book presence and state.
- Implemented a core attention analysis module determining user focus by correlating 3D gaze vectors with detected open book locations using ray-book intersection logic, processing at **25** FPS on GPU.

Publications

AI Powered Attention Monitoring System For Book Reading , High Technology Letters, Volume 31, Issue 7, July 2025. | *link*
Attention Monitoring Systems in Book Reading: A Comprehensive Review , paper presented at the 10th International Conference "Shaastrarth-2025" , Rungta College of Engineering and Technology, Bhilai.
Development of Mobile Application for Sickle Cell Anemia Treatment Support System , YMER, Volume 23, Issue 06, June 2024. | *link*

Education

University Teaching Department (CSVTU) | CPI (current): 8.33/10 **July 2025**
B.Tech (Honors) in Computer Science Engineering (Artificial Intelligence) *Bhilai, Chhattisgarh*

Skills

Languages: Python, Kotlin, SQL, Javascript
Developer Tools: VS Code, Android Studio, Google Colab
Technologies/Frameworks: Machine Learning, Deep Learning, n8n automation, Object Detection, Linux, Android Development, GitHub, Flutter, Docker, Firebase, Anaconda