

Hassaan Mustafavi

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ABOUT ME

Applied AI Engineer building AI agents, business AI/Automation workflows, and API integrations through low-code/no-code orchestration and Python-based AI/backend development. Over the past year, served **16+ SMBs** with AI and automation solutions. **Top Rated on Upwork with 100% job satisfaction.** Experience spans AI automation systems, full-stack AI SaaS apps, ML/forecasting, document intelligence/OCR, web automation and production-focused integrations.

SKILLS & TOOLS

AI Agents & Workflow Automation: *AI Agents, n8n, Make, Zapier, GHL, Webhooks, CRM/SaaS Integrations, WhatsApp Cloud API, Twilio, Retell AI/Vapi*

AI Engineering & Backend: *Python, FastAPI, REST APIs, OpenAI/Claude APIs, LangChain/LangGraph, RAG, PostgreSQL/Supabase, Docker, Git, Cloud Deployment*

Data, OCR & Web Automation: *OCR/Document Processing, PDF/Excel Extraction, Data Pipelines, Selenium, Playwright, Scrapy, Web Scraping, Browser Automation*

EXPERIENCE

Freelance

AI Automation Engineer

Remote

Dec 2024 – Present

Built and deployed AI/Automation systems for 16+ SMBs across automotive, real estate, health tech, SaaS, hospitality, and service industries.

TCL Pakistan

AI/ML Engineer - Contract

Lahore, Pakistan

Mar 2025 – Jul 2025

Developed MVPs for an *SOP Monitoring System* that streams live station feeds and tracks technician compliance, and a *Forecasting Tool* that predicts store unit demand using KPIs, weather data, and dynamic business conditions.

PROJECTS

- AI Voice Agents:** Delivered multiple voice agents for SMBs, including a real estate agent that automated buyer/property intake, lead qualification, meeting booking, confirmations, reminders, human escalation, and Monday.com CRM sync using Vapi, n8n, OpenAI, Supabase, WABA and internal APIs.
- Claude-Powered Marketing Performance Agent:** Built an ads ops agent that pulls daily Meta/Google campaign stats, uses Claude API to summarize spend, CTR, CPC, CPA, ROAS, leads, and conversions, and triggers rule-based pause/alert workflows via n8n when budget, CPA, or ROAS thresholds are breached.
- RAG Chatbot for Insurance Brokerage:** Built a chatbot to answer internal team queries from policy PDFs, coverage docs, claim guidelines, pricing sheets, and FAQs, with source-grounded responses and human escalation using LangChain, OpenAI, Supabase Vector DB, OCR, and FAST API.
- AI-Driven Spare Parts Automation System:** Built an end-to-end n8n workflow for request classification, routing, part lookup, inventory search, pricing, and order processing, integrating EPC catalog (APIWIN17), VIN/VAN decoding, and real-time inventory with up to 65%-time savings and 93% part-number accuracy.
- AI-Powered Patient Management System:** Built a HIPAA-compliant appointment and communication system with a WhatsApp AI agent for scheduling, patient follow-ups, and automated visit summaries, increasing bookings by 15% and reducing follow-up questions by 40%.
- SOP Monitoring System:** Built a real-time safety compliance system (MVP) using YOLOv8, OpenCV, and Python to detect technician presence and safety gear, trained on a custom 5k+ image dataset, with PyQt5 alerts, CSV/Pandas sync, async processing, and executable packaging.

7. **AI Demand Forecasting System:** Delivered a forecasting system for TCL (MVP) after-sales operations to predict stock needs, trigger low-stock alerts, and improve restocking decisions over time using operational KPIs, historical demand data, and reinforcement learning, achieving 73% forecast accuracy.
8. **AI Data Extraction System:** Built an internal SaaS tool to process large PDFs (125+ pages) and Excel reports, combining OCR and structured data pipelines to extract, clean, classify, and convert incoming quotes/requests into 6-layer decision-ready outputs.
9. **Desktop App Automation:** Built a Windows automation app to generate PDF reports from legacy desktop software across 4 versions and 5 languages, automating Google Sheets input, form filling, dropdowns, validation, OCR-based clicks, and report export; deployed on Windows Server 2016 with crash recovery, auto-retry, safe bypass, and per-entry status tracking, reducing 30-minute manual workflows.
10. **Web Automation & Data Extraction System:** Built a cloud-deployed scraping workflow for Auction.com to log into multiple accounts, track foreclosure listings, capture bids, detect listing changes, and export leads to Google Sheets with scheduling, Chrome profiles, proxies, CAPTCHA handling, and Zoho/Gmail tracking.
11. **LinkedIn Lead Gen Agent:** Built an n8n workflow that finds LinkedIn prospects from role/company/location prompts, enriches emails with Hunter.io, uses Gemini to personalize outreach from public profile data, and saves Gmail drafts plus tracking rows in Google Sheets.
12. **Multimodal WhatsApp AI Agent:** Built a memory-enabled WhatsApp agent that handles text, voice, and image interactions in real time, with voice transcription/replies, image analysis/generation, short-term SQLite memory, and long-term Qdrant retrieval using LangGraph, Groq, Whisper, FLUX, Docker, and Qdrant.
13. **ERP Desktop Automation for Data Extraction:** Built a Python/PyAutoGUI automation app for an Arabic ERP UI to read part numbers from Excel, search billing/ERP screens, capture non-exportable scrolling table results, and export structured data into a single sheet.
14. **Lead Gen Email Automation System:** Built a GPT-4o-powered email automation system for a custom webmail platform to detect unreplied customer messages and send one-time context-aware replies using Python, Selenium, prompt engineering, and Heroku deployment.
15. **Real Estate Web Scraping:** Built a Python/Selenium scraper for Zameen.com and Graana.com, extracting 115K+ unique property listings with price, area, and location data, handling dynamic content, deduplication, and clean structured exports for analysis.

Additional AI, ML & Software Projects

1. **GharBazar - AI-Powered Real Estate App:** Built a full-stack real estate Mobile app for buying, selling, and renting properties, with MCDM-based personalized search, AI price prediction, rent forecasting, and scraped property data pipelines using Flutter, Firebase, Python, FastAPI, PyTorch, and Prophet.
2. **Consultify - Doctor Appointment App:** Created a web app for online doctor consultations with dashboards for doctors, patients, and admins, featuring appointment booking, payments, and history tracking using Node.js and MySQL.
3. **Pharmacy Management System:** Designed a web-based pharmacy system with POS, inventory management, barcode scanning, and bulk messaging via WhatsApp API using Node.js and MySQL.
4. **Studify - Group Study Mobile App:** Developed a cross-platform group study app with video, voice, and media channels using Agora, featuring whiteboard support and TensorFlow-powered gesture-based controls.
5. **Text2Vision Using GANs:** Implementing CGANs to generate images from text, enhancing realism and semantic alignment through research-driven optimization.
6. **Emotion Detection App:** An NLP-based project, Pre-processed data by removing stop-words, stemming, and more. Tested with BiLSTM, RNN and CNN, Achieved an accuracy of around 89%.
7. **Bubble Sheet Grading:** An image-processing pipeline to evaluate MCQ sheets, detecting responses and applying negative marking without pre-trained models.

EDUCATION

National University of Computer and Emerging Sciences (FAST)
Bachelors in Computer Science

Lahore, Pakistan
2021 – 2025