

MUHAMMAD HAMZA IHSAN

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Summary

AI and web developer with 4 years of experience shipping production web applications in React, Next.js, Django, and WordPress, and building applied machine learning systems across computer vision, audio, NLP, and reinforcement learning. Combines both to deliver ML models as real, deployed products. Final-year Computer Science student at Bahria University.

Work Experience

WordPress Developer - Nexvative Innovation

Apr 2026 – Sep 2026

Responsibilities:

- Contributed to the company's own web platform built with Django and React.
- Worked on a multi-tenant dental booking platform (Next.js, Prisma, PostgreSQL, NextAuth, Calendly) — database schema, encrypted OAuth tokens, a webhook receiver, and role-based access middleware.
- Developed an academic journal's website (client work) in WordPress, Elementor, and PHP using ACF and custom post types: editorial board showcases, special issues, a history timeline, and archive pages.

Full-Stack Developer (Freelance) - Fiverr & Offline

Dec 2022 – Present

Responsibilities:

- Delivered websites and web applications for 15+ local and international clients using React.js, Next.js, Tailwind CSS, Supabase, PostgreSQL, and WordPress.
- Built dashboards, authentication, payment integrations, and API-driven workflows for healthcare, insurance, booking, and e-commerce products.
- Delivered projects on time, earning strong client reviews and repeat work.

React Developer Intern - UCapacity, Islamabad

Aug 2024 – Sept 2024

Responsibilities:

- Built front-end features in React with a cross-functional team, following best practices for performance and maintainability.

Intern Web Developer - Websterz Web Solutions, Islamabad

Sept 2022 – Feb 2023

Responsibilities:

- Developed websites with HTML, CSS, JavaScript, WordPress, and WooCommerce; recognized for strong work ethic and quick learning.

Projects

EcoSort - AI Recycling Classifier | YOLOv11, Python, Django, Next.js, Flutter | ecopro.hamzaihsan.me 2025

- Trained YOLOv11 object-detection models on a ~20K-image dataset covering 12 waste categories; the 3-class model reached 74.4% precision, 71.4% recall, 72.9% F1, and 90.9% specificity.
- Served inference through a Django REST API to a Next.js web app and a Flutter mobile app, deployed on Vercel and Render.
- Wrote a 6-page IEEE-format research paper documenting the dataset, training, and evaluation.

UAV Audio Detection (Final Year Project) | Python, Audio ML

2025 – Present

- Built a 7,773-clip drone audio dataset and ALPHA ONE, a 4-model ensemble classifier for UAV detection and identification.
- Developing ALPHA TWO with a Siamese network and Audio Spectrogram Transformer (AST) with ArcFace metric learning.

Text Authorship Detector | Python, TF-IDF, Naive Bayes, Streamlit

2025

- Trained and benchmarked 13 models (bag-of-words, word and character n-gram TF-IDF, handcrafted features, Naive Bayes, logistic regression, ensembles) to attribute chat messages among 8 authors or flag unknown authors.
- Best 4-author model reached 79.75% accuracy; built a Streamlit dashboard for live prediction and model benchmarks.

GreenWave Rewards Platform | React, Tailwind, MUI | greenwave.gi

Jul 2024

- Built the full dashboard front-end, including admin and customer panels, integrating 50+ APIs for vouchers, tasks, user and company management, authentication, and dashboards.

SEO Checker | Next.js, TypeScript, Puppeteer, Cheerio

2026

- Built an SEO audit engine with a site crawler that measures Core Web Vitals directly in headless Chrome (no PageSpeed API), captures screenshots, and exports PDF reports.
- Extending it into a bulk CSV audit tool for agency cold-outreach prospecting.

- M.A.R.L.S - Multi-Agent RL Fighting Game** | *Python, PPO, Pygame* **2025**
- Trained 2-player fighting-game agents with self-play PPO for 4.4M+ steps; designed the reward system and action space, with human-vs-AI and AI-vs-AI modes.
- Dr Heartly Medical Website** | *React, Tailwind, DaisyUI* | drheartly.com **Apr 2024**
- Developed a subscription-based healthcare service website with authentication, payment integration, and landing/dashboard pages. Client review: “went above and beyond.”
- WhenWhere Photo Game** | *Next.js, TypeScript, Drizzle, Neon PostgreSQL, Leaflet* **2026**
- Built a GeoGuessr-style game where players date and locate historical photos: 4 game modes, chained image sourcing (Wikipedia, Wikimedia, the Met), and a PostgreSQL-backed leaderboard with image voting.
 - Added 20 SEO content pages, AdSense with consent management, and an image-pool cache to reduce live API calls.
- BG Remover Desktop App** | *Python, PySide6, ONNX Runtime* **2026**
- Built an offline, cross-platform desktop app for high-quality AI background removal using BiRefNet/IS-Net ONNX models, with memory-aware batch processing and a pytest suite.
- Zaplock Digital Locker Platform** | *React, Next.js, Chakra UI, Supabase* | zaplock.pk **Aug 2024**
- Developed a digital locker booking platform for university locker management, with booking workflows and scalable database logic on Supabase.

Education

- Bachelor of Science in Computer Science at Bahria University, Islamabad** **2023 – 2027**
(CGPA: 3.39/4.0)
- FSc Pre-Engineering at Punjab College of Science, Islamabad** **2020 – 2022**

Achievements

- Microsoft Learn Student Ambassador (MLSA) & Former Technical Lead, MLSA Club, Bahria University**
- Led technical sessions, workshops, and community events to promote modern web technologies and developer tools among students.
- Research Paper, EcoSort**
- Wrote a 6-page IEEE-format paper on the EcoSort waste-classification system.
- Founder, HexaDevs**
- Run a service-based web development agency delivering websites and web apps for clients.
- McKinsey Forward Program Graduate**
- Completed McKinsey's global capability-building program, developing skills in problem-solving, structured thinking, and leadership for career growth.

Skills

Languages Python, TypeScript, JavaScript, PHP, C++, SQL, HTML5, CSS3

AI & ML YOLOv11 (Ultralytics), Audio Spectrogram Transformer, Siamese Networks, PPO, DQN, TF-IDF, Naive Bayes, Logistic Regression, Ensembles, ONNX Runtime

Web React.js, Next.js, Django REST Framework, Node.js, WordPress, Tailwind CSS, MUI, shadcn/ui

Data & Tools PostgreSQL, Supabase, Prisma, Jupyter, Streamlit, Webots, Git, Vercel, Render, LaTeX

Core Competencies ML Model Training & Evaluation, ML Deployment, Full-Stack Development, API Design, Responsive UI Design

Soft Skills Teamwork, Collaboration, Problem-Solving, Design-Oriented Thinking, Quick Learning