# Zory.AI: The AI is Your New Advisor, For an Unparalleled Shopping Experience.

An intelligent platform for furniture detection and recommendation that revolutionizes how users discover and shop for home décor.

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## Mission

At **Zory**, our mission is to redefine the home decor experience by integrating advanced AI into the process of furniture detection and recommendation. We strive to empower users to effortlessly discover personalized decor ideas that blend aesthetics with functionality—bridging the gap between creative inspiration and practical design solutions.

**Platform URL:** zory.ai

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## The Challenge

Modern home décor shoppers face overwhelming choices and often struggle to find items that complement their personal style. The key challenges were:

- **Information Overload:** Users are inundated with options, making it difficult to filter through cluttered online catalogues.
- **Lack of Personalization:** Traditional e-commerce platforms do not offer tailored recommendations based on user preferences and visual aesthetics.
- **Inefficient Search:** Finding the right furniture and décor pieces based solely on text search is time-consuming and often inaccurate.
- **Integration Complexity:** Merging advanced AI models with a seamless, user-friendly interface required a robust technology stack that could handle real-time image and product recognition.

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## Objectives

- Personalization: Offer AI-driven recommendations tailored to individual taste and space.

- Seamless Experience: Develop an intuitive, high-performance platform that simplifies the journey from inspiration to purchase.
- Efficiency: Utilize state-of-the-art AI for rapid and accurate furniture recognition to support an extensive, well-organized image library.
- Innovation: Lead the market with innovative technologies that merge art, design, and machine learning.

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# Our Approach

To address these challenges, we embarked on a mission to combine AI with elegant design:

- **AI-Driven Image Recognition:** We developed and integrated machine learning models capable of analyzing images to detect furniture and decor elements. This allowed the system to categorize products accurately and link them with similar styles.
- **Personalized Recommendations:** By leveraging user interactions and historical data, our recommendation engine learns from user behavior, ensuring that the suggestions become more refined and relevant over time.
- **Modern Web Technologies:** Next.js was chosen for its speed and scalability on the frontend, providing a smooth and dynamic user experience. Django on the backend ensured robust data handling, security, and efficient integration with our AI models.
- **User-Centric Design:** The platform was designed with simplicity and usability in mind, ensuring that users can effortlessly browse through an organized image library and discover decor ideas that resonate with their personal style.

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# The Solution

Our solution is a full-stack web application that marries the power of AI with an intuitive interface. Key features include:

- **Smart Image Library:** A well-organized collection of décor images where AI tags each image with detailed metadata, making search and discovery seamless.
- **Furniture Detection:** Advanced computer vision algorithms that identify and classify furniture items in images, providing users with instant details about the products.
- **Tailored Recommendations:** An AI recommendation engine that analyzes visual patterns and user preferences to suggest similar products, enhancing the shopping experience.
- **Responsive Interface:** Built with Next.js, the frontend ensures that the platform is fast, interactive, and accessible across devices.
- **Robust Backend:** Django serves as the backbone of the platform, managing user data, product catalogs, and coordinating with the AI modules for real-time processing.

## Results & Impact

Since launch, Zory.AI has transformed the way users interact with home decor online:

- **Enhanced User Engagement:** Users now spend more time exploring décor ideas thanks to the intuitive image library and personalized recommendations.
- **Improved Conversion Rates:** The smart recommendation engine has led to an increase in product discovery and sales, as users find items that truly match their style.
- **Efficient Browsing Experience:** The seamless integration of AI-driven search and detection capabilities has minimized the time users spend hunting for the perfect piece.
- **Scalable Architecture:** With Next.js and Django, the platform is built to scale, ensuring that it can handle growing traffic and an expanding catalogue without compromising performance.

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## Technologies & Tools

- **Frontend:**
  - **Next.js:** For building a high-performance, SEO-friendly, and dynamic user interface.
- **Backend:**
  - **Django:** For managing server-side logic, data processing, and seamless integration with AI modules.
- **AI & Machine Learning:**
  - Furniture Detection: We fine-tuned a YOLOv11 model to accurately detect furniture items in images.
  - Vector Database Integration: Embeddings are stored in Pinecone, a vector-based database optimized for similarity searches.
  - Adaptive Recommendations: Our recommendation algorithms dynamically adjust based on product similarities in color, shape, size, and overall image characteristics.
  - Robust Libraries: We leverage Python-based machine learning libraries such as TensorFlow, PyTorch, and OpenCV to build and optimize our models.
- **Additional Tools:**
  - AWS Cloud services for scalable hosting and data storage.
  - Github Actions for CI/CD pipelines to ensure rapid deployment and continuous improvement.

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# Wireframes & Layouts

Our design process began with comprehensive wireframing sessions that mapped out every user journey—from initial landing to final purchase. Early sketches evolved into detailed layouts that balanced visual appeal with functional navigation. Key screens were iterated upon multiple times, ensuring that the final designs aligned with both our technical requirements and the aesthetic expectations of our users.

Zory.AI represents a forward-thinking blend of cutting-edge AI and elegant design to deliver a truly personalized home décor experience. By tackling the challenges of information overload and impersonal shopping, the platform is setting a new standard for how consumers interact with online furniture and décor retail.