

# Skill-Connect AI - Skill Sharing with smart Interviewer

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## Abstract

The Skill Exchange Platform is a web-based application that directly connects individuals who want to share and learn skills, promoting collaborative learning and mutual growth. It allows users to build detailed user profiles describing their skills, experience level, and learning interests, enabling effective peer-to-peer (P2P) learning and better skill matching. A skill matching algorithm analyzes these profiles to identify complementary skill sets and suggest relevant connections. The platform includes a skill marketplace for browsing opportunities, along with integrated communication tools such as chat and video calls, task tracking with milestones, and a feedback system to capture reviews and improve trust and verification. It also promotes community building by allowing users to share experiences and track their progress through learning analytics. Security and privacy are ensured through strong authentication and controlled access.

In addition, the platform features an Artificial Intelligence (AI) interviewer powered by a Large Language Model (LLM) for mock interview system functionality, supporting both technical interview preparation and Human Resources (HR) interview simulation. The AI dynamically generates role-specific questions, maintains conversational flow, and evaluates responses based on clarity, relevance, and communication skills. It provides personalized learning feedback, scoring, and improvement suggestions, helping users enhance their job readiness. To boost engagement, gamification elements such as badges, streaks, and leaderboards are incorporated. The platform addresses key challenges like scheduling conflicts and trust-building through structured workflows. Future enhancements include advanced AI-based recommendations, voice-enabled interviews, group learning features, mobile application support, and deeper analytics.

Overall, the platform aims to create a robust ecosystem for efficient skill exchange and AI-driven interview preparation.

**Keywords:** Skill Exchange Platform, Collaborative Learning, Peer-to-Peer (P2P) Learning, Skill Matching Algorithm, Artificial Intelligence (AI), Large Language Model (LLM), Natural Language Processing (NLP), Mock Interview System, Technical Interview Preparation, Human Resources (HR)

## 1. Introduction

In today's rapidly evolving digital landscape, continuous learning and skill development have become essential for both academic and professional success [1], [2]. However, access to high-quality learning

opportunities remains uneven due to factors such as financial constraints, geographical limitations, and lack of mentorship [3]. While online learning platforms have significantly improved accessibility, many of them still lack personalized guidance, interactive engagement, and real-time feedback [4].

To overcome these challenges, peer-to-peer learning models have gained popularity as an effective approach to knowledge sharing. Skill exchange platforms, in particular, provide an environment where individuals can teach and learn from one another without relying on monetary transactions. This approach not only democratizes education but also promotes collaboration, practical learning, and community engagement [5], [6].

The proposed Skill Exchange Platform builds upon this concept by integrating advanced technological features to enhance usability and effectiveness. An intelligent matchmaking system is used to connect users with complementary skills, ensuring that learning interactions are meaningful and goal-oriented [7]. Additionally, features such as session tracking, communication tools, and feedback systems contribute to a structured and transparent learning process.

To further improve engagement, gamification techniques are incorporated into the platform. Research shows that elements such as badges, leaderboards, and rewards significantly enhance user motivation and participation in digital learning environments [8].

A major extension introduced in this work is the integration of an AI-based interviewer module. Traditional interview preparation methods often rely on static question banks or human mentors, which may not always be accessible. By leveraging advancements in artificial intelligence and transformer-based language models, the system can simulate realistic interview scenarios, generate adaptive questions, and provide immediate feedback [9], [10].

This integration transforms the platform into a comprehensive ecosystem that not only supports skill acquisition but also prepares users for real-world job opportunities. By combining peer learning with AI-driven evaluation, the system aims to bridge the gap between knowledge acquisition and practical application.

## 2. Literature Survey

Traditional crowdsourcing platforms such as Upwork primarily focus on task completion rather than long-term skill development, which limits opportunities for novice users to enhance their capabilities over time. To address this limitation, the Atelier system introduces a mentorship-driven model in which experienced professionals guide less-experienced participants through structured micro-internships [11].

In this approach, researchers conducted both user surveys and controlled field experiments to analyze barriers to skill growth and compare mentored and non-mentored work environments. The findings demonstrate that participants who received mentorship showed significantly improved problem-solving abilities, better knowledge retention, and higher overall task performance. Key factors contributing to these improvements included milestone-based task structuring, continuous feedback, and guided learning support. Additionally, the study highlights financial and accessibility constraints that prevent many learners from engaging in high-quality skill development opportunities. By embedding mentorship within

a crowdsourcing ecosystem, Atelier effectively bridges the gap between theoretical learning and real-world experience [11].

Building upon mentorship-based learning, recent advancements in artificial intelligence have led to the development of AI-driven interview preparation systems. These systems leverage natural language processing and large language models to simulate realistic interview environments. Transformer-based models such as BERT and modern generative models like GPT enable the generation of context-aware, role-specific questions and facilitate automated evaluation of candidate responses [9], [10].

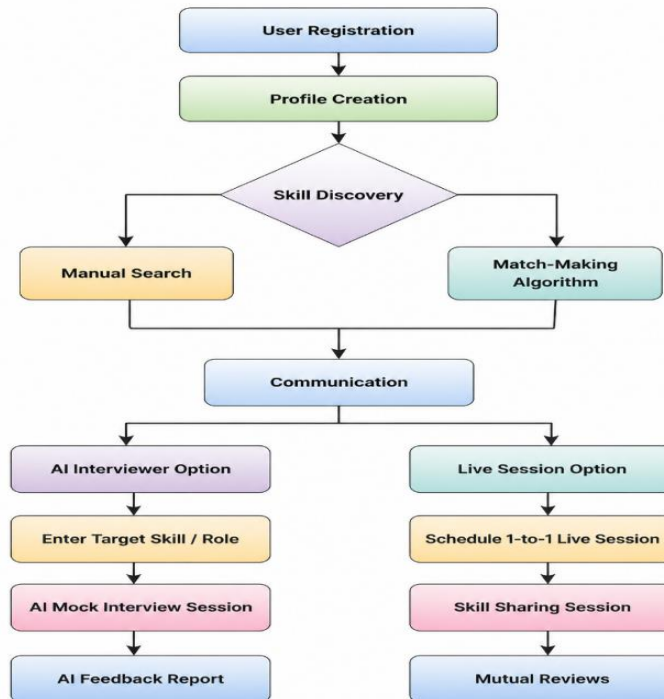
Such systems are capable of analyzing responses based on multiple criteria, including relevance, clarity, coherence, and communication effectiveness. Many implementations also generate structured feedback reports, sometimes including confidence scores and improvement suggestions. Furthermore, recent studies have explored multimodal approaches that incorporate facial expression analysis, speech patterns, and posture recognition to evaluate soft skills such as confidence, eye contact, and communication style. These AI-driven systems have consistently demonstrated improvements in user confidence, answer structuring, and overall interview readiness after repeated practice sessions [9], [10].

In addition to AI-driven evaluation, research in collaborative learning highlights the effectiveness of peer-to-peer knowledge exchange models. Studies show that such environments improve engagement, critical thinking, and long-term knowledge retention by encouraging active participation and shared learning experiences [5], [6]. Similarly, gamification techniques—such as badges, leaderboards, and reward systems—have been proven to enhance motivation and sustained user engagement in digital learning platforms [8].

Moreover, intelligent recommendation and matchmaking systems play a crucial role in optimizing user interactions within learning platforms. Collaborative filtering techniques and preference-based algorithms enable efficient pairing of users based on their skills, learning objectives, and behavioral patterns, thereby improving the relevance and effectiveness of learning exchanges [7].

The integration of structured peer mentorship, AI-driven interview simulation, and intelligent matchmaking aligns closely with the objectives of the proposed Skill Exchange Platform. By combining these elements, the system enables users not only to acquire knowledge through peer interaction but also to validate their skills through realistic, AI-powered mock interviews. This dual approach ensures both conceptual understanding and practical readiness for real-world scenarios.

Overall, existing literature strongly supports the idea that the convergence of peer-to-peer learning, artificial intelligence, and gamification can create a comprehensive and scalable learning ecosystem. Such a system effectively addresses key challenges in modern education, including accessibility, engagement, skill validation, and interview preparedness, making it highly suitable for integration into next-generation skill development platforms.

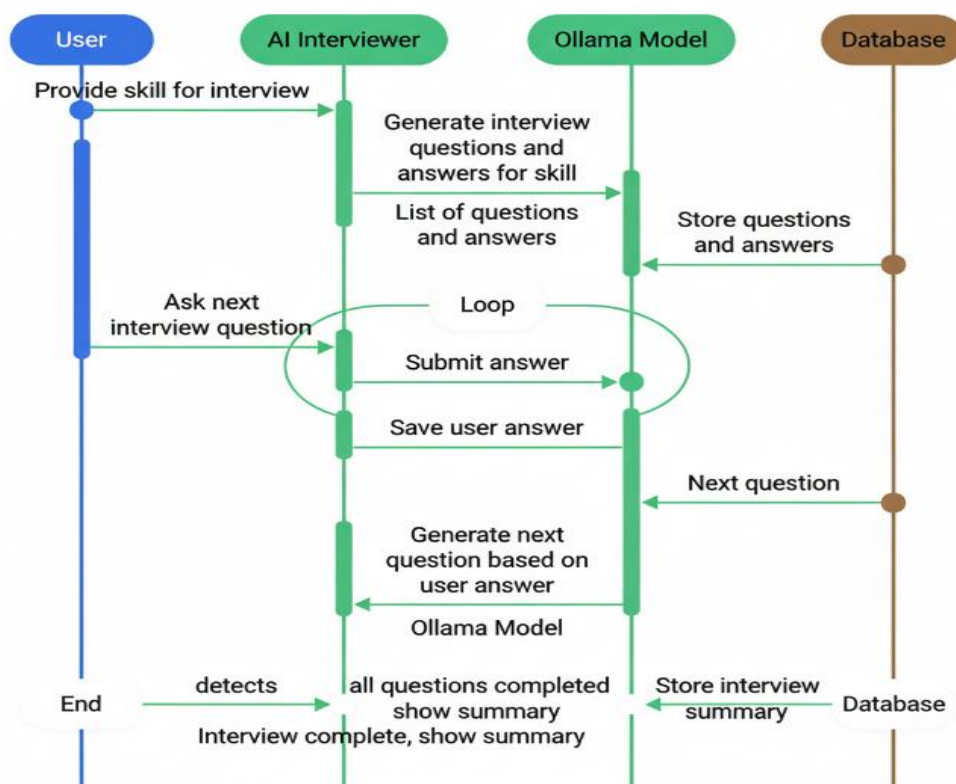


### 3. Proposed Methodology

The proposed Skill-share Connect platform is designed as an integrated web-based system that combines peer-to-peer skill exchange with AI-driven interview preparation. The architecture emphasizes simplicity, scalability, and usability, ensuring that the platform remains accessible to students and freshers while incorporating intelligent features inspired by modern learning systems [5], [7].

1. **User Profile and Skill Representation:** Each user is provided with a structured profile that captures essential information such as name, skill sets, learning interests, and a brief personal description. Users can register as learners, mentors, or both, allowing flexibility in participation. Additional attributes such as experience level and preferred domains are used to better understand user expertise and learning goals. This structured representation aligns with collaborative learning models that emphasize identity and participation in knowledge-sharing communities [5].
2. **Matchmaking and Skill Discovery Mechanism:** The platform incorporates a hybrid discovery approach consisting of recommendation-based matching and manual browsing. Users are suggested potential partners based on overlapping skills and interests, while filtering techniques enable efficient manual search. Such matchmaking approaches are commonly supported by collaborative filtering and recommendation system techniques in digital platforms [7].
3. **Skill Marketplace and Session Request Workflow:** A centralized skill marketplace displays available skills, mentors, and learning opportunities. Users can initiate session requests, which are accepted or rejected by mentors. Once confirmed, session details such as topic, schedule, and notes are stored. This structured interaction model reflects peer-to-peer learning systems that enable organized knowledge exchange and accountability [6].

4. **Communication and Session Management:** The platform provides lightweight communication features such as messaging or comments within session requests. These tools allow users to coordinate sessions and clarify expectations. Effective communication mechanisms are essential for collaborative learning environments and significantly enhance knowledge transfer and engagement [6].
5. **Progress Tracking and Learning Reflection:** A simplified progress tracking system allows users to record short notes after sessions or interviews. This reflective approach encourages continuous improvement without adding system complexity. Research shows that self-reflection and iterative learning improve long-term knowledge retention and skill development [2].
6. **AI Interviewer Module (Core Innovation):** The AI interviewer module is the primary innovation of the system. Users can select a target role and initiate mock interviews, where questions are dynamically generated using a large language model integrated via Ollama. The system generates context-aware questions and evaluates responses based on relevance, clarity, and structure. This approach is inspired by recent advancements in transformer-based models such as BERT and large-scale generative models like GPT [9], [10]. Unlike static question banks, the AI module maintains a conversational flow and provides real-time feedback. The workflow of the AI interviewer module is illustrated in Fig. 1. The interview process begins when the user selects a target skill or interview domain. The AI interviewer communicates with the Ollama language model to dynamically generate interview questions and evaluate user responses. Generated questions, user responses, and interview summaries are stored in the database for future analysis and progress tracking. Based on the submitted response, the system continuously generates follow-up questions until the interview session is completed.



At the end of each session, a summary highlights strengths and areas for improvement, enabling iterative learning and skill refinement.

7. **Feedback System and Learning History:** The platform includes a feedback mechanism where users can rate sessions and provide comments. Additionally, previous sessions and interview attempts are stored, allowing users to track their progress over time. Such feedback-driven systems are critical for building trust and improving learning outcomes in online communities [6].
8. **Scalability and Future Enhancements:** The system is designed with modular architecture to support future extensions. Planned enhancements include voice-based interviews, advanced scoring systems, and mobile integration. Scalable and adaptive system design is a key requirement for modern digital learning platforms and AI-enabled applications [7].

## 4. Result & Discussion

The Skill-share Connect platform was implemented as a unified web-based system to support both peer-to-peer skill sharing and AI-driven interview preparation. The system enables users to register, create skill-based profiles, discover learning partners, schedule sessions, and participate in mock interviews through an AI interviewer module. During testing and controlled usage scenarios, the platform demonstrated that users were able to efficiently discover relevant skills, connect with peers or mentors, and practice interview questions in a structured and interactive manner. The results suggest that integrating collaborative learning workflows with AI-based evaluation significantly enhances practical learning outcomes and career readiness [5], [9].

1. **Improved Engagement Through Gamification:** One of the key observations was the positive impact of lightweight gamification on user engagement. Features such as session counts, participation labels (e.g., “Active Learner”), and simple recognition mechanisms encouraged users to remain active on the platform. Users who received visible progress indicators were more likely to continue participating in both skill-sharing sessions and mock interviews. This aligns with existing research showing that gamification elements improve motivation and long-term engagement in digital learning systems [8].
2. **Efficient Skill Discovery and Session Requests:** The integration of basic search and filtering mechanisms significantly improved the efficiency of skill discovery. Users were able to quickly locate relevant mentors or peers by searching for specific skills or categories. This reduced dependency on manual coordination and streamlined the process of initiating sessions. The effectiveness of such filtering and recommendation mechanisms is consistent with findings in collaborative filtering and matchmaking systems [7].
3. **Effectiveness of the AI Interviewer Module:** The AI interviewer module, powered by Ollama, proved to be one of the most impactful components of the platform. Users could select a target domain or role (e.g., Java Developer, Django Developer) and engage in dynamic mock interview sessions. Unlike traditional static question banks, the AI module generated context-aware questions and follow-up prompts based on user responses. This adaptive interaction created a more realistic interview experience. User feedback indicated that the system improved their ability to structure answers, think critically, and respond under simulated interview conditions. These

findings are consistent with research on AI-based interview systems that utilize transformer models such as BERT and modern generative models like GPT [9], [10].

4. **Support for Continuous Self-Assessment:** The platform maintains a history of previous interview sessions, including questions and user responses. This allows learners to revisit past attempts and evaluate their progress over time. Such iterative self-assessment promotes reflective learning and helps users identify areas of improvement. Studies in educational psychology suggest that continuous feedback and self-evaluation significantly enhance knowledge retention and skill development [2].
5. **Simplified Communication and Session Management:** Although the platform does not include fully integrated video conferencing or scheduling systems, its lightweight communication model proved sufficient for coordinating sessions. Users were able to exchange messages, finalize topics, and use external tools for live interaction. This approach reduced system complexity while still enabling effective collaboration, aligning with principles of practical and scalable system design in collaborative platforms [6].
6. **Observed Benefits for Students and Freshers:** The combined learning and interview preparation workflow was particularly beneficial for students and fresh graduates. Users could first engage in skill-sharing sessions to build conceptual understanding and then immediately test their knowledge through AI-driven mock interviews. This sequential learning approach helped bridge the gap between theoretical knowledge and practical application, leading to improved confidence and interview readiness. Such integrated learning models are supported by research in peer learning and applied skill development [5].
7. **Limitations and Challenges:** Despite its effectiveness, the current system has certain limitations. The AI interviewer operates in a text-based mode, lacking voice interaction and advanced multimodal analysis. Additionally, the system does not currently provide detailed scoring metrics or analytical dashboards. User feedback indicated a demand for more structured evaluation, including numerical scoring and deeper explanations for incorrect responses. These limitations highlight opportunities for future enhancements, particularly in incorporating speech processing and advanced analytics [9].
8. **Discussion and Overall Impact:** Within its defined scope, the Skillshare Connect platform demonstrates that even a lightweight, student-level implementation can effectively integrate skill sharing with AI-based interview preparation. The results show that users can discover relevant peers, coordinate learning sessions, and practice interviews within a single ecosystem, eliminating the need for multiple external tools. The integration of a backend framework such as Django with an AI model via Ollama provides a scalable foundation for future development. Overall, the platform highlights the potential of combining peer-to-peer learning, intelligent matchmaking, and AI-driven evaluation to create a practical, engaging, and career-oriented learning environment. Future improvements such as voice-based interaction, enhanced feedback mechanisms, and advanced analytics can further strengthen the system's effectiveness and real-world applicability.

## 5. Conclusion & Future Scope

The proposed Skillshare Connect: Smart Interviewer platform presents a practical and scalable approach to modern skill development by integrating peer-to-peer learning with AI-driven interview preparation in a unified web-based environment. By enabling users to exchange knowledge, schedule learning sessions, and participate in simulated interviews, the system effectively bridges the gap between theoretical understanding and real-world application.

The platform is particularly beneficial for students and fresh graduates, providing an accessible and cost-effective solution for both skill acquisition and interview readiness. The integration of collaborative learning with intelligent evaluation aligns with contemporary educational models that emphasize active participation and experiential learning [5], [6].

From a technical perspective, the use of a backend framework such as Django ensures efficient management of user profiles, sessions, and interaction data, while the integration of a large language model through Ollama enables dynamic question generation and contextual feedback. This combination demonstrates that even a lightweight architecture can deliver meaningful learning experiences when supported by intelligent system design. A key contribution of this work lies in the seamless integration of peer-based learning with automated interview practice. Unlike traditional systems that rely on static content or limited mentorship, the proposed platform allows users to iteratively engage in mock interviews, analyze their responses, and improve over time. This iterative learning process is supported by principles of self-reflection and feedback-driven improvement, which are known to enhance learning outcomes [2].

Furthermore, the inclusion of gamification elements and structured interaction workflows contributes to sustained user engagement and motivation. Prior research has shown that such mechanisms significantly improve participation and retention in online learning environments [8].

Despite its effectiveness, the current system has certain limitations that define the scope for future enhancements. The AI interviewer currently operates in a text-based mode, lacking multimodal capabilities such as voice interaction and non-verbal analysis. Additionally, the absence of a detailed scoring system and advanced analytics limits the depth of performance evaluation.

Future work will focus on addressing these limitations by incorporating voice-based interaction using speech-to-text and text-to-speech technologies, enabling more natural and realistic interview simulations. Advanced evaluation mechanisms can be introduced to provide structured scoring based on criteria such as correctness, completeness, and communication clarity. Integration of machine learning-based recommendation systems can further personalize learning paths by suggesting relevant skills and interview topics based on user performance and behavior [7].

Additional enhancements may include the development of a mobile-friendly interface or dedicated mobile application to improve accessibility, as well as the incorporation of real-time video interaction for fully integrated learning sessions. Expanding the platform to support group-based learning and collaborative workshops can further strengthen its community-driven approach.

In conclusion, the Skillshare Connect platform demonstrates that the integration of peer-to-peer



learning, intelligent matchmaking, and AI-driven interview simulation is both feasible and impactful, even within a student-level implementation. The system provides a strong foundation for future advancements and highlights the potential of combining modern web technologies with artificial intelligence to create scalable, engaging, and career-oriented learning ecosystems.

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