The Employment Risk and Coping Strategies for Undergraduates in the Era of Artificial Intelligence: A Qualitative Research in Fuyang, China

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Abstract

This research aims to deeply analyze the employment risk faced by undergraduates in Fuyang, China under the background of artificial intelligence and propose practical countermeasures. Through the comprehensive use of survey data collection and multi-subject analysis methods, a comprehensive survey was conducted on the employment status of undergraduates in Fuyang, covering multi-dimensional data such as employment rate, employment flow and salary level. At the same time, it deeply analyzed the employment risk such as job substitution risk, skill mismatch, and psychological and cognitive biases brought about by artificial intelligence. Based on this, countermeasures are proposed from four levels: colleges and universities, the government, enterprises and college students themselves, including colleges and universities adjusting professional settings, optimizing curriculum systems, and strengthening practical teaching; the government introduces support policies and guides industrial development; enterprises deepen school-enterprise cooperation and provide timely feedback on talent needs; college students improve their learning ability, cultivate innovation and cross border integration capabilities. The research aims to provide theoretical and practical references for the employment guidance and education policymaking of college students in Fuyang and help alleviate the employment pressure of college students in the artificial intelligence environment.

Keywords

Artificial intelligence, Undergraduate employment, Employment risk, Coping strategies, Social security

Introduction

Artificial intelligence (AI), the most emblematic fruit of the 21st century technological revolution, is now diffusing across the globe at an unprecedented velocity. Its technical architecture encompassing machine learning, deep learning, natural language processing and allied discipline has permeated healthcare, finance, manufacturing, education and a widening array of vertical sectors, fundamentally recalibrating traditional operating models and productivity metrics [1]. In advanced manufacturing, for example, intelligent robots execute high precision repetitive tasks once reserved for human operatives [2]. In terms of services, data-driven customer care platforms have markedly elevated both user experience and operational efficiency [3]. This pervasive deployment has not only propelled a leap in aggregate productivity but has also unleashed transformative, system wide socioeconomic effects. Labor markets are being reconfigured: routine occupations confront accelerating substitution risk, while new categories of employment data analysts, AI software engineers and cognate roles are rapidly emerging [4]. Consequently, artificial intelligence has become a focal arena of global technological competition and a decisive force in shaping the trajectory of future societal development.

In the field of education, the rapid advance of AI has begun to exert pronounced shocks on the employment prospects of university students. On the one hand, the penetration of AI is eliminating several traditional industries and positions, exposing graduates to fiercer competition in the labor market. On the other hand, the diffusion of emerging technologies is raising the bar for both the knowledge structure and the skill set of new entrants. For example, under an AI driven environment, enterprises increasingly favor interdisciplinary, practice ready hybrid talents, whereas university programs are

still frequently criticized for divorcing theory from practice, leaving graduates' overall competence below market expectations [5]. Moreover, the technology induced upgrading of industrial structures widens the misalignment between what universities supply and what the economy demands. Therefore, an inquiry into the employment difficulties of students in higher education institutions becomes especially urgent: It can clarify the concrete impacts of AI on local graduate employment and provide a theoretical basis for targeted countermeasures.

Considering the above background, this study therefore sets out to identify the employment risk confronting Fuyang's university students in the age of AI and to formulate corresponding strategies. Its significance is both theoretical and practical.

Theoretically, by systematically dissecting the mechanisms through which AI reshapes graduate employment, the research enriches the literature on technological progress and labor market outcomes and opens new analytical angles and methodological paths for future work. Practically, its findings will supply Fuyang's universities with evidence-based guidance for refining career support services, restructuring majors and redesigning curricula so that they better match AI era human capital needs.

In addition, the multi agent strategy package proposed here offers actionable roadmaps for government, industry and students themselves, fostering a coordinated employment support ecosystem that can raise the competitiveness of Fuyang's graduates. The study thus contributes not only to the goal of high-quality employment for local students, but also to the broader socio-economic development of the region.

Literature review

Theoretical basis for the impact of AI on undergraduate employment

Research on the relationship between technological progress and employment serves as a crucial theoretical framework for understanding the impact of artificial intelligence on undergraduate employment. According to classical economic theory, technological advancement may lead to job losses in the short term. However, in the long run, it creates high-quality employment opportunities by fostering the development of emerging industries and boosting labor productivity [6]. This theory has been further validated in the field of artificial intelligence: As a disruptive technology, AI not only transforms the operational models of traditional industries but also redefines the structure of labor market demand. For instance, jobs that are repetitive and mechanically oriented are increasingly replaced by intelligent systems, while positions requiring creativity, critical thinking, and complex interpersonal skills are retained or even expanded. Moreover, technological progress has given rise to a host of new professions, such as data analysts and algorithm engineers, which impose higher demands on undergraduates' knowledge structures and skill sets [7]. Thus, the impact of AI on undergraduate employment is twofold, presenting both challenges and new opportunities.

In China, the development of artificial intelligence has intensified the supply demand mismatch between higher education and the labor market. Studies indicate that the response speed of educational systems often lags the pace of technological change, resulting in a disconnect between talent cultivation and market demand [8]. In the era of AI, this disconnects manifests itself in the difficulty for undergraduates to meet the requirements of emerging positions with their existing knowledge and skills. For example, curricula in some traditional majors still focus primarily on foundational theoretical instruction, lacking sufficient cultivation of practical abilities and interdisciplinary knowledge [9]. These places graduate at a disadvantage when confronted with a rapidly evolving employment landscape. The emergence of new industries diversifies college students' career choices but also intensifies competition in the job market [10]. Therefore, how to narrow this gap through educational reform has become an urgent issue.

Research gap

Based on a systematic review of the existing literature, although scholars at home and abroad have made notable progress in examining how AI affects undergraduate employment, research specifically devoted to underdeveloped regions remains conspicuously scarce. This gap limits both the generalizability and the practical relevance of current findings. First, most extant studies concentrate on macro level analyses of national or regional labor markets, leaving qualitative, case specific investigations underrepresented. Second, when policy recommendations are offered, they often overlook the distinctive constraints faced by local universities, such as limited educational resources and weak industrial

foundations rendering the advice difficult to implement on the ground.

To address these shortcomings, the present study fills this void by combining fieldwork and data analysis, taking Fuyang (an underdeveloped area in China) as its empirical case. It explores the employment challenges confronting local undergraduates in an AI driven environment and proposes targeted coping strategies.

Research on the employment status of undergraduates in Fuyang

Research design

To obtain a comprehensive picture of undergraduate employment in Fuyang, this study combines questionnaire surveys with in-depth interviews. Questionnaires were distributed across the city's main higher education institutions, comprehensive universities, polytechnics and normal colleges to guarantee sample diversity. The instrument covers respondents' majors, job preferences, actual employment status, starting salary, and perceptions of AI technology. A random sample of 500 final year students was selected as the core chore and tracked for three months to capture dynamic employment trajectories. Meanwhile, semi structured interviews were conducted with multiple stakeholder's heads of university career-services offices, corporate HR managers, and recent graduates to corroborate and enrich the survey data. Sample size was calculated based on 95% confidence level and ± 5% margin of error, ensuring the findings are both representative and reliable.

Data analysis

Fuyang is home to three universities: Fuyang Normal University, Fuyang University of Technology, and Fuyang Institute of Technology. According to an analysis of publicly available data such as the "2024 Undergraduate Employment Quality Report of Fuyang Normal University," the "2024 Undergraduate Employment Quality Report of Fuyang University of Technology," and the "2024 Undergraduate Employment Quality Report of Fuyang Institute of Technology", the employment situation is clearly revealed.

In terms of average employment rates by college (as shown in Figure 1), the School of Big Data and artificial intelligence boasts an average employment rate of 92%, significantly higher than that of the Law School. This is further reflected in the employment rates for Computer Science and Technology and artificial intelligence-related majors, which reach 92% and 88% respectively, whereas traditional liberal-arts majors such as History and Philosophy have relatively low employment rates of only about 75%. These figures indicate that market demand for technology intensive majors is markedly higher than for traditional disciplines.

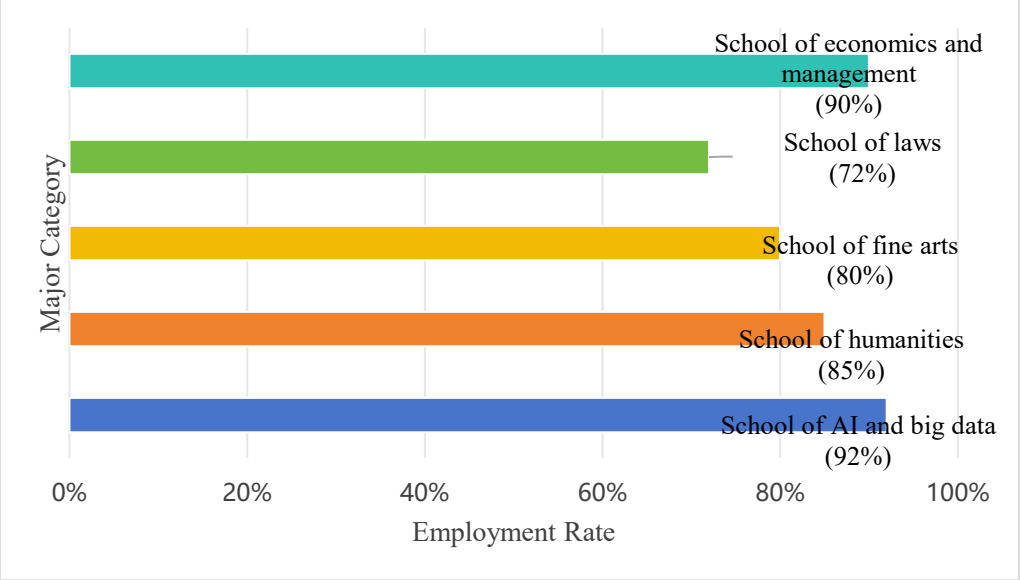

Figure 1. Average employment rate by school type.

Through a random sample of 500 undergraduates from the 2026 graduating class of the three universities, we found that 9.21% chose to stay and work in Fuyang city, 60.52% plan to seek employment in other cities within Anhui province, 17.11% prefer the developed coastal cities in eastern China, 1.32% target cities in central and

western China, and 11.84% selected other regions. In terms of salary, positions related to emerging technologies and information sectors such as artificial intelligence and big data analytics offer markedly higher starting wages, with an average monthly salary of about 8,000 RMB, whereas jobs in traditional service industries cluster in the 4,000-5,000 RMB range. These figures vividly illustrate the characteristics of undergraduate employment from Fuyang's universities and its correlation with market demand.

Integrating the data above allows an in-depth analysis of the strengths and weaknesses characterizing the employment of Fuyang's undergraduates: Strengths first, Fuyang's universities have already registered visible returns on their AI related programs, with computer science and data science majors in particular outperforming the rest, a result of the municipal government's targeted support for the local AI industry and of the universities' own efforts to revamp curricula and strengthen hands on training. Weaknesses follow, several long established majors still post low employment rates, as graduates in the humanities encounter intense competition because their skill profile is poorly matched to the new positions created by rapid AI diffusion, and, inside the high employment AI majors, many undergraduates' actual competencies lag behind market expectations, especially in practical coding ability and in the interdisciplinary integration of AI domain knowledge with business, design or sector specific expertise. At present, these issues have somewhat moderated the overall quality of employment for bachelor's graduates. Meanwhile, as artificial intelligence technologies continue to deepen, their implications are beginning to feel increasingly pressing.

The risk brought by AI to undergraduate employment

The risk of job substitution

The rapid development of AI technology is exerting a profound impact on traditional employment, especially on jobs that are repetitive and mechanical, where the risk of being replaced by AI rises markedly. Research shows that positions demanding little creative thinking or emotional communication are the most vulnerable. In finance, for example, bank counter operations, credit monitoring and risk forecasting have already been taken over by intelligent systems, yet these posts were once prime targets for new graduates, illustrating how technological progress is squeezing the job market. For Fuyang's undergraduates this substitution risk is particularly acute: On the one hand, several local universities still concentrate on conventional disciplines such as financial management and marketing, whose graduates now face fiercer competition. And on the other hand, as AI spreads, firms prefer automated equipment or smart systems for routine tasks, cutting demand for low skilled labor. Consequently, students on these programs must rethink their career plans and actively seek directions that fit the new era.

In the long run, job substitution threatens not only individual opportunities but also structural unemployment, if universities fail to realign their training models, the supply of graduates in some majors will keep mismatching demand and the talent contradiction will worsen. Therefore, tackling AI driven job displacement has become a key challenge that Fuyang's higher education institutions urgently need to address.

Mismatch of employment skills

Beyond job replacement risk, Fuyang's undergraduates face a harsher challenge: Their skills no longer match what the market demands. Wide AI adoption is driving explosive demand for cutting edge technical competencies, yet the ability profile of most graduates has failed to keep pace. Algorithm research and application development posts, for instance, remain severely understaffed, while supplying overflows for basic operational roles a clear sign that universities are turning out talent disconnected from real needs. Specifically, Fuyang students exhibit three glaring gaps: First, inadequate command of core technologies such as programming and data analytics, leaving them uncompetitive for AI-related positions. Second, weak capacity to integrate knowledge across disciplines, making them ill-equipped for complex tasks that require multi field collaboration. Third, a chronic lack of hands-on experience that caps their career growth. These deficiencies not only narrow graduates' job choices but also drag down the wider economic development of Fuyang.

To close the divide, universities must dissect exactly what AI infused markets require and, aligning with regional economic traits, design more scientific, forward looking training programs. Government and business

must step in, supplying policy backing and resources to help drive higher education reform and shrink the skills supply gap.

Employment cognitive bias among undergraduate students

Employment cognitive bias is the systematic distortion in someone's perception that labor market changes are irrelevant to their own majors, leading them to underestimate risks and misallocate career preparation effort. Against the backdrop of AI, Fuyang undergraduates confronting an employment risk commonly exhibit anxiety, bewilderment and similar psychological states, while simultaneously displaying cognitive bias toward the potential impact: Although over 60% of respondents view AI positively, more than 70% admit they understand it poorly, and some even believe its development will exert no substantive influence on their own majors. Such misperception may lead them to overlook AI related challenges during job hunting and thus forfeit valuable career development opportunities.

Deeper analysis shows these psychological and cognitive distortions stem chiefly from three factors: First, insufficient awareness of the employment environment, because they have long been confined to campus life with little exposure to the harsh external labor market, they lack any visceral sense of AI's real impact. Second, absence of clear career planning faced with rapidly evolving technology, many students fail to adjust their learning goals or development paths in time, leaving them passive when seeking jobs. Third, a deficient social support system that amplifies psychological burdens and makes negative emotions more likely when an employment risk strikes.

Multi subject strategies for addressing employment risks

The universities' response strategies

Against the backdrop of rapid AI expansion, universities key training grounds for talent-must dynamically realign their program portfolios with market demand and AI trajectories: Launching new majors that directly address the shifting employment structure big data analytics, intelligent manufacturing, machine learning, etc. while simultaneously retrofitting legacy disciplines by embedding AI related knowledge and skills to boost graduate adaptability.

Guided by national strategy, universities should mirror the priorities of the "Made-in-China 2025" plan and the 14th Five-Year AI roadmap, rebalancing program layouts to supply the high caliber, cross disciplinary professionals society now requires. Locally, they must map Fuyang's industrial restructuring needs and stand-up practice-oriented majors that feed regional economic growth. Curriculum optimization is equally critical: Core modules must integrate AI technology, data mining and machine learning, and students should be incentivized to take cross-faculty courses in engineering, psychology, economics, etc., to widen intellectual bandwidth and raise composite quality. Drawing on the best international practice, universities can weave MOOCs and other online resources into degree requirements, expanding self-directed learning and future-proofing skills.

Practice based instruction is the third lever of employability, by building internship bases, running real world projects, and co-founding labs or training centers with industry partners, universities give students hands-on exposure to authentic AI development cycles. Complementing these channels, hackathons, AI application design contests and entrepreneurship programs sharpen innovation, teamwork and problem-solving abilities, laying a solid foundation for competitive entry into tomorrow's AI infused labor market.

The government's response strategies

The city government should roll out a targeted support package to ease AI era graduate employment. First, tax credits can offset part of the wage bill for firms that hire fresh bachelor-level talent, lowering their cost burden. Second, a dedicated start-up fund should offer seed money and one-stop administrative clearance to student entrepreneurs, cutting both financial and regulatory entry barriers. Third, vouchers that reimburse AI related upskilling courses will encourage undergraduates to add machine learning, data analytics or cloud engineering certificates to their résumés. These measures, properly funded and widely advertised, will relieve graduate pressure and accelerate the deep integration of higher education with the local AI industry.

By steering industrial development, the government can also enlarge the stock of high-quality jobs suited to

undergraduates. Larger public investment should flow into AI and adjacent fields intelligent manufacturing, smart healthcare, AI driven education, so that new business models and value chains emerge. Targeted industrial plans and sweeteners should be used to attract high tech headquarters or scale-up centers to set up in Fuyang, expanding overall labor demand. Planners must ground these efforts in the city's resource endowments and existing industrial base, cultivating distinctive AI clusters e.g. Agri tech robotics or smart logistics, that differentiate Fuyang from rival regions. Finally, a tripartite "government university industry" platform should co-finance joint labs, pilot lines and commercialization hubs, aligning technological innovation with talent pipelines and boosting graduates' job readiness.

The enterprises' response strategies

Enterprises play an irreplaceable role in tackling graduate under-employment, and university industry partnership is the most workable model: Firms co-design talent-training schemes that translate market demand into clear learning outcomes, sit on curriculum committees, and write AI oriented syllabi and textbooks so that what is taught maps one-to-one onto what will be done on the job. They open their plants, labs and code bases for internships, letting students read real-time industry signals and bank hands-on experience while still on campus. This pipeline not only eases the graduate job squeeze but also stockpiles high caliber, work ready recruits for the firms themselves. Complementary channels, guest lectures, hackathon sponsorships, micro certification boot camps broadcast frontier know how that keeps undergraduates aligned with tomorrow's career contours.

Timely, granular feedback is the second lever: Companies should issue twice yearly talent demand bulletins, show up at on campus career fairs with skill scorecards, and spell out exactly which Python frameworks, cloud stacks or cross disciplinary soft skills they now prize. A standing liaison group CTOs, HR heads and university deans can meet each semester to return program specs, technical experts seconded as adjunct mentors can coach capstone teams and referee thesis projects. This two-way traffic shrinks the gap between what the campus produces and what the AI amped market consumes, lifting every graduate's employability quotient. Therefore, Fuyang firms need to treat talent cultivation as a core social responsibility, invest real resources in joint laboratories and work study credits, and turn local undergraduates into the competitive edge that will power the next wave of regional growth.

Professional ethics of undergraduate students

In the AI era undergraduates must keep boosting their learning power to stay abreast of volatile market needs: First, embracing lifelong learning by MOOCs, open courseware and AI-specialized micro credential platforms to master new algorithms, frameworks and tools. Second, complementing online study with boot camps, hackathons and vendor certificates to build systematic, verifiable expertise. A disciplined, interest driven learning plan that is revised every semester will enlarge knowledge reserves and prevent obsolescence amid rapid technological turnover.

Equally critical are innovative thinking and cross domain fusion. By joining research projects, startup incubators and AI application contests, students sharpen problem solving creativity, by straddling disciplines computer science majors adding psychology for human centered AI design, or economics for algorithmic pricing models, they craft hybrid profiles that automation cannot easily replicate. Keeping an eye on sectoral roadmaps (smart agriculture, AI diagnostics, intelligent logistics) lets them spot emerging niches early. Armed with continuous learning loops and boundary-spanning ingenuity, Fuyang's undergraduates can convert AI from threat into opportunity and secure high-quality jobs in the province's next-generation industrial landscape.

Conclusion

Implementation of the above measures is expected to improve undergraduate employment in Fuyang on several fronts. At the institutional level, re-tuned programs and curricula will narrow the skills market gap. Adding new majors such as intelligent manufacturing, AI and data analytics, embedded in interdisciplinary course clusters. It will cultivate versatile graduates who are both more employable and more adaptable. Government instruments expanded tax breaks, higher start-up grants and targeted industrial policy should stimulate student entrepreneurship and generate quality jobs, enlarging graduates' choice set. Active corporate involvement, manifested in university industry partnerships, will

supply practice placements and mentoring, smoothing the transition into work. Together, these levers are projected to raise overall employment rates and strengthen competitiveness in technology driven segments in five years.

Yet rolling out the package will also surface new challenges. First, policy may lose force through weak execution: without tight monitoring, generous incentives can be whittled down by red tape, slow approval or opaque criteria, limiting take-up by students and start-ups. Second, firms may balk at the cost or short-term distraction of collaboration, leaving joint labs, internship bases and co-designed courses underdeveloped. Third, uneven resource distribution inside universities, especially thin AI capable teaching staff-could blunt the impact of curriculum reform and skills upgrading. Detecting and fixing these bottlenecks in real time will be decisive for success.

Therefore, future research should: (1) Drilling into the emerging implementation gaps. Micro-studies on administrative efficiency can yield fixes for incentive delivery, parallel work on corporate motivation can design reward structures and governance rules that lock in durable university industry links. (2) Mounting a longitudinal evaluation. Tracking Fuyang graduates' employment trajectories for (at least) the next five years will reveal which measures work, for whom and under what conditions, allowing policy to be recalibrated dynamically. (3) Scanning international experience and adapt it. Successful models from other countries for cushioning AI related labor shocks should be screened, de-contextualized and re-engineered to fit Fuyang's institutional and industrial profile. Only through continuous experimentation, feedback and refinement can the strategy stay scientifically grounded and operationally effective, securing robust employment prospects for Fuyang's undergraduates in the AI era.

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Conflicts of Interest

The author declares no conflict of interest.

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