PERSONALIZED LEARNING PATHWAYS IN INFORMAL IT LEARNING USING GENERATIVE AI

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Summary

The information technology (IT) industry is growing rapidly, and AI enablement is transforming the education and learning landscape. This article explores the use of personalized learning strategies in informal IT courses, especially if discussions take place among engineers with strong expertise in related technical contexts and it focuses on the role of generative AI-powered virtual mentors, comparing the learning experiences of experienced engineers and novices. Additionally, it explores ways to maintain motivation, identify strengths and weaknesses, and balance professional work with ongoing learning. The article discusses the shift in professionals from non-IT industries and the growing trend towards standardization in the AI era. Practical examples are integrated throughout to illustrate real-world applications of these concepts.

Keywords: *Artificial Intelligence (AI) in education, Generative AI, personalized learning, virtual mentor, informal IT education, work-study balance, educational technologies.*

Introduction. Advances in artificial intelligence (AI) are fundamentally changing how education is delivered, especially in the field of information technology (IT). Among the most transformative developments is the rise of generative AI, which has the potential to tailor personalized learning strategies to individual learners' needs in real time. These changes are especially important in informal IT learning environments. The ability to tailor learning based on their existing skills was essential to engage and ensure effective learning. By integrating AI-powered mentors, students benefit from customized guidance that continues as they progress, providing unprecedented levels of individuality and support.

The role of AI in education is increasingly moving towards enhancing flexibility and meeting the needs of students. Generative AI in particular offers the ability to provide dynamic content, real-time feedback, and personalized learning experiences that can scale to different groups of students. In informal IT courses of course, AI transformation is critical for engineers who have to balance professionalism and consistency in learning. While traditional classroom or intensive online courses may not be appropriate for these professionals, AI-powered learning systems allow them to learn at their own pace, and focus on locations which should be developed without sacrificing performance.

The integration of virtual mentors powered by generative AI is an important development in this area. A virtual mentor is more than the static teaching provided by traditional e-learning platforms. It provides continuous, interactive feedback. consistent with the rhythm of the students and provide personalized guidance based on students' academic performance and career goals. For example, an experienced network engineer can use a virtual mentor to master new cloud technologies. Including integrated AI content based on engineers' existing knowledge in network and system management. This level of personalization is critical in today's rapidly changing IT environment, that professionals must constantly improve their skills in order to compete.

The Problem. One of the major issues that many working professionals often have is the challenge of keeping up with the changes and advancements in the IT sector, which is characterized by the rapid emergence and development of new technologies. Full-time working engineers, for instance, may find that conventional learning, such as attending university classes and even well-structured online classes, may not be appropriate for them. Such individuals often

require learning fast, without necessarily stopping the regular routine. Further, many learning platforms adopt a generic approach in designing the curriculum, which fails to differentiate the learners on the basis of their age or level of experience.

Experienced engineers' dilemma revolves around how to identify learning pathways that build onto their existing knowledge, so that they do not go over materials they already know. For the beginners the concern is much more basic: how to start and not drown in this ocean of information and rapidly developing technologies? In addition, heterogeneous professionals, who have skills in non-IT domains, need a different kind of system that values their capabilities and at the same time enchases their weaknesses to fit into the IT system. Generative AI-driven virtual mentors solve the problem by tailoring the educational process to the needs of the learner, their pace of studying and career and professional education requirements.

Aim of the Article. The purpose of this article is to explore how generative AI, via the concept of virtual mentorship, can revolutionize personalized gaining knowledge of pathways in informal IT training. Specifically, it aims to analyze the ways in which generative AI can guide engineers who already possess robust information in parallel fields, at the same time as also addressing the needs of beginners with little or no IT experience. The article additionally seeks to explore how virtual mentors can keep learner motivation, stability getting to know with work commitments, and offer targeted remarks to strengthen weak areas and enhance sturdy ones. Finally, it examines how using AI in training contributes to the developing fashion of IT generalization, blurring the limits among specialized and generalized roles.

Novelty. This article contributes to the body of information by reviewing a novel attitude on how generative AI can be efficiently used to customize getting to know pathways for IT experts. The key studies supplied here is the unconventional technique of utility of digital mentors, which harnesses the power of generative AI to offer a more dynamic, adaptive, and learner-centric enjoyment. By comparing the studying techniques of skilled engineers with the ones of beginners, the article uncovers how generative AI can cater to various instructional needs, regardless of the learner's starting point. Additionally, it addresses how such AI-driven gaining knowledge of fashions may be included into an expert's ongoing paintings, a topic of huge importance but frequently underexplored in current literature.

Moreover, the item introduces an essential dialogue at the broader trend of AI facilitating a shift from specialization to generalization in IT roles. The potential of AI to swiftly generate personalized studying materials allows professionals to gather go-disciplinary abilities, making them more flexible within the workplace. This shift has profound implications for how IT education is designed and brought, especially as extra professionals transition among domain names or are searching for to end up generalists in a swiftly evolving job market.

Presentation of the main material. The concept of virtual mentorship, especially within the context of IT learning, is driven by using the need for adaptive, real-time guidance that traditional gaining knowledge of environments often can't offer. Virtual mentors, powered via generative AI, vary from conventional getting to know platforms in that they have interaction dynamically with the learner. They monitor the learner's development, provide customized remarks, and constantly adjust the learning materials based totally on performance and skill development. This tailor-made interplay facilitates learners' live engagement, promotes green learning, and ensures the learner's goals are aligned with their professional needs [9, p. 25].

Generative AI complements virtual mentors through letting them no longer handiest check a learner's progress but additionally to create new gaining knowledge of materials, quizzes, or venture assignments which can be in particular tailor-made to the individual's mastering curve. For example, a software engineer who excels in Java but struggles with distributed systems may get hold of a custom curriculum specializing in allotted computing concepts, provided in a manner that relates to their current knowledge of Java-primarily based systems. The mentor can advise extra readings, provide physical games that assign the learner's know-how, and offer incremental

steps that regularly introduce more complicated ideas. This ensures that learners do not feel crushed and can step by step build their competence in new areas.

Virtual mentors also provide an advantage in that they can accommodate multiple studying styles. Some beginners can also gain from hands-on coding exercises, at the same time as others would possibly opt for conceptual tutorials or hassle-solving classes. By the usage of generative AI, virtual mentors can analyze a learner's performance through distinctive varieties of responsibilities and alter the layout and trouble of future tasks accordingly. This adaptability is particularly vital for engineers who're juggling multiple responsibilities and need a flexible model of learning that provides their specific benefits [1, p. 711].

Generative AI-based totally learning pathways fluctuate drastically among experienced engineers and beginners. Experienced engineers, who often have sturdy foundational knowledge in parallel areas of IT, benefit from virtual mentors that target specialized gaining knowledge of deeper mastery of precise subjects. For example, an engineer gifted in cybersecurity might also use AI-powered mentorship to discover advanced cryptography techniques or the brand new trends in steady cloud computing, while not having to go through an introductory level. By skipping redundant content, experienced rookies can pay attention to refining and increasing their information in focused areas, with an efficient process of gaining knowledge [3, p. 3].

In evaluation, beginner engineers require an extra structured and foundational approach. Virtual mentors for beginner and inexperienced persons frequently begin with primary programming languages or preferred computing concepts, progressively introducing more advanced topics because the learner's abilities improve. For example, an entire novice getting to know Python will want great guidance on syntax, data structures, and logic, which the mentor can offer through step-by way-of-step tutorials, exercises, and feedback. Novice inexperienced persons are also much more likely to have an advantage from a mastering pathway that includes common tests and reviews, permitting the AI to modify the tempo and problem of the content in real-time based on the learner's progress [11, p. 7].

One real example of this is seen in an education program at a massive tech enterprise like IBM, where both experienced and beginner engineers are engaged in continuous learning the use of AI-driven mentorship platforms. Experienced engineers normally use the platform to upskill in specific areas, which includes machine learning or cloud architecture, even as novice engineers comply with extra established learning paths, beginning with foundational programming and progressively progressing in the direction of more specialized skills [5, p. 2015]. This dual technique lets in the company to tailor the mastering revel in to the unique needs in their workforce, ensuring that each group makes meaningful development at their very own tempo.

Another vital distinction among experienced and newbie engineers inside the learning procedure is the potential to apply abstract concepts to practical scenarios. Experienced engineers frequently are trying to find learnings which align with their everyday duties, making it simpler for them to see the relevance of the latest knowledge. Virtual mentors can facilitate this through imparting undertaking-primarily based learnings of possibilities that mimic real-global situations. For instance, an engineer that specializes in cloud computing can be tasked with designing a microservices structure for a large-scale net application, the usage of the tools and know-how received at some point of their AI-mentored sessions of gaining knowledge.

On the other hand, novice engineers frequently warfare to see how abstract principles fit into a broader IT system, requiring extra specific connections among theory and practice. Virtual mentors can help bridge this gap with the aid of presenting analogies, visible aids, and step-by-step walkthroughs of complex methods. A newbie engineer mastering approximately database systems might first be added to base concepts including tables and relationships, followed by means of extra complex topics like indexing and normalization. The virtual mentor can provide interactive simulations that show how those concepts are carried out in real-world scenarios, for this reason supporting the learner to better recognize their practical importance.

This distinction in learning strategies highlights the want for generative AI to offer not only personalized content but additionally customized delivery methods. For experienced persons, the mentor may prioritize challenging problem-solving tasks and superior projects. For novices, the point of interest may be in breaking down complicated ideas into extra manageable, chunk-sized pieces, with common checkpoints and feedback loops to make sure information earlier than transferring ahead.

Feedback is a critical factor in the personalized learning of experience, specifically within the context of virtual mentorship. For both experienced and novice learners, real-time comments guarantee that misunderstandings are corrected early and that person continues to be at the right tune. Generative AI permits virtual mentors to provide unique, context-aware feedback based on the learner's movements. For example, if an engineer incorrectly implements an algorithm, the AI mentor can not only point out the error however additionally explain why the approach changed into the wrong one and offer hints for improvement.

For newbie learners, feedback plays an even greater vital role in constructing self assurance and making sure of non-stop progress. Virtual mentors can provide step-by-step guidance and provide motives in response to wrong solutions, supporting novices to broaden a deeper understanding of the material. The AI also can alter the extent of elements in its remarks based at the learner's level. An experienced engineer may acquire quick, technical feedback, at the same time as a beginner might need a more deeper explanation of the underlying ideas before trying the challenge once more.

In addition to actual-time feedback, virtual mentors can tune the learner's development over time, figuring out styles of mistakes and areas wherein the learner consistently struggles. This allows the mentor to modify the gaining knowledge process accordingly, presenting additional sources or exercises focused at the learner's weak sides. Over time, this adaptive method facilitates newbies making stronger their weaker areas whilst persevering with to build on their strengths.

Motivation Strategies for Continuous Learning. One of the main challenges in informal IT learning is keeping motivation over the years, especially for engineers who balance between professional commitments and learning goals. Personalized learning pathways, mixed with the adaptive abilities of AI, can help learners stay engaged with the aid of making sure the material is neither too tough nor too easy. When learners experience that the content is customized to their wishes, they are much more likely to stay motivated and committed.

Gamification is another powerful tool that may be applied into AI-pushed learning environments. Virtual mentors can introduce badges, progress tracking, and rewards for completing tasks, which faucet into the learner's intrinsic motivation. Additionally, AI can generate adaptive goals that mission newbies to outperform their preceding benchmarks, fostering a sense of accomplishment and development [7, p. 4].

An exceptional example comes from Google where engineers are recommended to take part in continuous learning using AI-primarily based systems. In this company, virtual mentors examine character overall performance on coding assignments and recommend personalized exercises that help each engineer enhance their problem solving skills. One engineer, initially focusing on database management, became capable of transition into a DevOps position after completing a customized learning of pathway that leveraged generative AI to train him competencies in automation, cloud management, and CI/CD pipelines [2]. Similar techniques we are able to see carried out in other global tech companies like Amazon, Microsoft, etc.

Identifying Strengths and Improving Weaknesses. In any learning pathway identifying an individual strengths and weaknesses is critical for maximizing the productivity and effectiveness of the educational experience. Generative artificial intelligence with its power to analyze large amounts of information provides opportunities for tailoring acquisition paths founded along personal performance, skills and gaps in knowledge. This section explores how generative AI helps assess skills tailor learning encounters and improve both strong and weak areas in IT professionals specifically within informal learning environments.

Generative AI can accurately assess the skills of learners through ongoing analysis of their interactions with learning materials. These assessments run on the far side of conventional quizzes or exams incorporating operation along with coding exercises, problem-solving tasks and real-time projects implementation. AI-driven systems examine a learner's decision-making method, track progress and identify layouts that might indicate underlying strengths or weaknesses. For example if an engineer is systematically performing well in algorithm implementation but just struggles with data management the artificial intelligence unit will find this cut-through sentence to customize that targets these areas of of trouble. [6, 2015]

One of the great benefits of AI in skills assessment is its power to bear immediate feedback and advocate particular learning resources. After identifying a learner's weaknesses, generative AI can provide targeted exercises, recommend tutorials or suggest project-based tasks that directly address these knowledge gaps. For example, an engineer who excels in cloud architecture but struggles with security protocols may be presented with a study module targeted on encryption strategies, secure cloud infrastructure, and risk management frameworks. This approach is not only more efficient but also fosters continuous studying, as newcomers are guided closer to areas wherein they are able to grow as opposed to being bombarded with inappropriate materials [10, p. 1431].

Once an AI system identifies areas for development, it is able to create a personalized learning of course that focuses specifically on those susceptible points. For example, an IT professional with a strong background in the front-end development but confined in back-end development technologies may receive a gaining knowledge of a path that gradually introduces server-side languages like Node.Js or Python, along with database management structures which include MySQL or MongoDB. The AI tool can step by step grow the complexity of tasks based totally on the learner's performance, making sure that the man or woman is neither beaten nor bored.

Generative AI can also offer scaffolding to make certain that newcomers construct a stable basis in weaker regions. Scaffolding refers to the instructional method of offering beginners with step-by-step guidance, which is regularly eliminated as the learner becomes more experienced. For instance, a learner suffering with object-oriented programming may begin with notably based lessons that skip key concepts which include classes, inheritance, and polymorphism. As the learner's expertise deepens, the AI system can steadily introduce extra complicated tasks, which includes implementation of a full-scale application with the usage of object-oriented concepts. This guarantees that newbies are capable of completely realize concepts earlier than moving on to more advanced material.

While addressing weaknesses is vital, improving a learner's strengths is equally treasured, in particular in a subject as vast as IT. Generative AI can assist engineers in deepening their expertise in areas where they already excel by way of recommending superior content, hard problem sets, or opportunities for specialization. For instance, an IT engineer with sturdy expertise in network security may be guided toward extra advanced subjects, such as zero-trust architectures, intrusion detection systems, or modern encryption algorithms. By pushing learners to in addition develop their strengths, AI can assist them flow from being just proficient in a particular area to becoming experts.

In a few cases, engineers may additionally desire to specialize further in their vicinity of understanding. Generative AI can provide them the possibility to pursue micro-certifications or advanced courses in specified areas. For example, a software engineer talented in machine learning is probably directed towards specialized topics like adversarial networks, or natural language processing (NLP). By introducing increasingly complicated challenges and inspiring deeper exploration, virtual mentors can assist beginners in becoming concept leaders of their domains.

Real-world applications of generative AI in IT are getting to know the effectiveness of targeted, personalized learning pathways. One case study is a front-end web developer who wanted to enlarge their skills set to include back-end technologies. The learner to start with struggled with

server-side coding and database management, but through an AI-powered learning platform, obtained a custom designed mastering course that specializes in these areas. Over several months, the virtual mentor supplied targeted feedback, suggesting small coding tasks that progressively expanded in complexity. The result becomes a continuing transition from front-end up to full-stack development, because the learner builds self belief in their weaker areas even as they continue to use their front-end expertise.

Another instance comes from a network engineer who wants to expand their expertise of a cloud infrastructure. The AI mentor diagnosed gaps inside the engineer's knowledge of cloud security and hybrid cloud deployments. It supplied a chain of focused learning modules targeted on these areas, regularly introducing more advanced security protocols and multi-cloud strategies. Within a short period, an engineer has become experienced in those areas, enabling them to take on new duties within their corporation.

In each case, generative AI performed a critical position in not only simplest addressing weaknesses but also offering the necessary help to transform the weaknesses into strengths. This stage of personalization enables inexperienced persons to attain their complete ability, whether they may be aiming to emerge as generalists with a vast ability set or specialists in a selected domain.

Feedback is crucial for non-stop improvement, especially inside the context of personalized studying. Generative AI systems are uniquely geared up to offer exact, context-specific feedback in real time. For instance, if an engineer makes a mistake in a coding workout, the digital mentor can provide an explanation for the error in detail, offer potential solutions, and advocate additional exercises to reinforce learning. Unlike traditional learning approaches, where comments can be restricted to accurate or incorrect solutions, AI-driven mentors can give an explanation for why a specific approach turned improper, assisting engineers understand the underlying concepts very well.

Moreover, the AI system can track a learner's progress through the years, identifying routine issues or patterns of errors. If a learner constantly struggles with a particular concept - consisting of recursive algorithms - the AI can generate extra content material or exercises designed to address this difficulty, ensuring that the learner subsequently masters the concept. This ability to evolve to the learner's desires on an ongoing foundation is one of the key strengths of generative AI in personalized learning, ensuring that rookies are constantly enhancing, even in areas wherein they have issues.

Generative AI's potential to evaluate each strengths and weaknesses lets it propose customized learning pathways that align with the learner's profession desires. For instance, an IT expert who's robust in coding but vulnerable in project management may additionally obtain a learning direction that balances technical and managerial capabilities, positioning them for management roles in the destiny. Conversely, a man or woman with strong leadership competencies, but restricted technical expertise may be guided closer to learning extra about software development or data analysis, permitting them to take on greater hands-on roles inside their company.

This tailored method not only has the most effective advantages for the person learner however additionally aligns with the desires of contemporary groups, which is crucial for companies. By providing focused learning opportunities that balance the learner's strengths and weaknesses, generative AI facilitates specialists to grow in methods that benefit both their personal development and their company's objectives.

Balancing Learning with Professional Work. Balancing continued learning with ongoing professional responsibilities is a project that many IT experts face. In the swiftly evolving tech landscape, staying updated with present day tools, frameworks, and methodologies is important for career growth. However, finding the time to analyze even as handling full-time work may be hard. This section explores the advantages and challenges of integrating mastering with expert work and compares the effectiveness of parallel getting to know (learning while working) with devoted

gaining knowledge of time (putting aside specific time for training). It also discusses how generative AI can be a useful resource in handling this balance, making mastering greater accessible and customized for IT professionals.

Parallel learning - getting to know while simultaneously operating on professional initiatives - gives several benefits. One of the number one benefits is the immediate application of newly received knowledge in real-world situations. For example, an IT engineer studying container orchestration in the usage of an environment like Kubernetes can directly observe those skills in their ongoing project, which includes deploying microservices in a cloud environment. This instantaneous reinforcement solidifies the mastering and guarantees that the information is sensible and relevant. Parallel learning additionally saves time, as newbies do not need to watch for a dedicated duration to engage in skill building. Instead, they could integrate gaining knowledge into their daily tasks [8, p. 307].

However, the challenges of parallel learning are extensive. Managing each learning and job duties can result in cognitive overload, in particular if the learner is engaged in notably stressful work responsibilities. Engineers may also discover it tough to concentrate fully on both their work or their mastering, leading to a dilution of both efforts. Additionally, without a structured agenda of learning, specialists may additionally battle to hold steady development, often prioritizing pressing priority tasks over learning. In such instances, virtual mentors powered by generative AI can help by way of providing bite-sized studying modules that suit within the learner's agenda and adapt primarily based on their workload. For example, AI can apprehend while a learner has restrained time due to task deadlines and adjust the studying tempo for that reason, imparting smaller, practicable learning duties that still make a contribution to standard progress [4, p. 29].

On the other hand, dedicating particular time solely for learning offers deep awareness and an extra immersive educational revel in. Professionals who set apart time for learning reports higher retention rate and a deeper information acceptance of complex concepts. For instance, taking a week off work to go in depth into the machine learning pathway can also permit an engineer to absolutely immerse themselves in algorithms, data processing strategies, and model deployment. This targeted interest can cause faster mastery of recent technologies and allow newcomers to explore subjects in extra depth without the steady interruption of work related tasks.

The drawback of dedicated mastering time is that it is no longer feasible for plenty of IT professionals, especially the ones operating in fast-paced environments with tight project deadlines. Additionally, the lack of instantaneous usage throughout the learning of duration can bring understanding decay, wherein newcomers forget new principles before they have got the chance to apply them in a real-world task. To mitigate this, a mixed method that combines both dedicated gaining knowledge of time and parallel learning is often endorsed. For example, engineers can devote some hours every week to in-depth study even as also incorporating smaller learning sports into their day to day recurring via virtual mentorship systems.

Generative AI can play a large role in assisting specialists balance to learning with work through supplying bendy, personalized learning pathways that adapt to the character's agenda and workload. For example, AI-pushed systems can examine a learner's calendar and workload to advocate the great instances for focused learning sessions or advocate small duties that can be finished at some stage in breaks. Virtual mentors can also track progress and send reminders to inspire steady learning, assisting to keep motivation over the long time.

Moreover, generative AI can prioritize studying content that is immediately applicable to ongoing initiatives. This just-in-time studying guarantees that the learner isn't always overwhelmed with pointless information and focuses on skills in order to have the finest impact on their present day priorities. For example, an IT professional running on a cloud migration project would possibly get hold of studying substances focused on cloud safety and infrastructure automation, without delay improving their capacity to carry out their task at the same time as concurrently upskilling.

By imparting adaptive learning feedback that matches within the constraints of professional lifestyles, generative AI ensures that non-stop mastering becomes a sustainable exercise for IT specialists. This stability among learning and priorities is fundamental to fostering a professional boom in an enterprise that demands both deep technical know-how and the potential to rapidly adapt to new technologies.

Generalist vs. Specialist in the Age of Generative AI. Generative AI is accelerating the trend in the direction of generalization in IT roles. Previously, IT specialists often specialized in areas of interest like database management, cybersecurity, or system architecture. However, AI is enabling people to gather a wide range of skills quickly, making it easier for them to transition among distinctive domains.

For instance, a data scientist may broaden additional capabilities in software engineering, machine learning, and cloud infrastructure, making them a versatile asset in cross functional teams. The ability of AI-powered learning platforms to deliver personalized content in a manner that beginners can develop a big selection of skills, lowering the need for hyper-specialization.

Non-IT experts who wish to transition into the IT field face unique challenges. Unlike skilled engineers, these people might also lack foundational information in programming or system design. For them, AI-powered learning systems offer the capability to begin from the fundamentals, building up their understanding gradually. For instance, a marketing expert transitioning into IT would possibly begin via learning basic HTML and CSS, observed with the aid of extra complex subjects like JavaScript and database management, as the virtual mentor adjusts the getting to know pathway primarily based on their progress.

Conclusion. The landscape of IT training is unexpectedly evolving because of improvements in generative AI. With the developing call for IT specialists, traditional learning strategies fall short, in particular for folks who must balance daily priorities and continuous learning. Generative AI addresses this difficulty via providing personalized, adaptive education tailored to the particular needs of IT learners, from novices to experienced engineers.

One of the important strengths of generative AI is its potential to deliver custom content based on a learner's background and goals. Experienced engineers can acquire domain specific content material that complements their existing knowledge, at the same time as beginners are guided via foundational topics. This personalized mastering pathway guarantees green and tasty education that meets the learner's particular desires.

Generative AI-powered virtual mentors play a pivotal role in this transformation. These mentors provide real-time feedback, customized studying plans, and non-stop help. By studying a learner's overall performance, AI identifies strengths and weaknesses, presenting targeted resources to bridge any know-how gaps. These adaptive remarks guarantee constant progress, irrespective of a learner's start line.

Motivation is essential for successful IT learning, and AI enables maintaining engagement via gamification, development tracking, and personalized challenges. This keeps studying exciting at the same time as fitting into the learner's expert time table. Generative AI's flexibility lets professionals stabilize their ongoing priorities with continuous gaining knowledge, stopping a decline in productivity.

In the AI-pushed studying environment, there may be a shift from specialization to generalization. Generative AI allows IT professionals to acquire a broader skill set across multiple domains, making them extra adaptable in an industry in which cross functional roles are becoming not unusual. This holistic technique for schooling allows specialists to seamlessly transition between roles.

In conclusion, the mixing of generative AI into informal IT training marks a tremendous development in professional studying. Virtual mentors, personalized studying pathways, and adaptive feedback structures create bendy, efficient training that surpasses conventional strategies. As AI continues to shape the industry, IT professionals will have a broader skills set, supported through generative AI technologies.

ПЕРСОНАЛИЗИРОВАННЫЕ ПУТИ ОБУЧЕНИЯ В НЕФОРМАЛЬНОМ IT-ОБУЧЕНИИ С ИСПОЛЬЗОВАНИЕМ ГЕНЕРАТИВНОГО ИИ

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Аннотация

Информационные технологии (IT) особенно быстро развиваются в последнее время, и генеративный искусственный интеллект (ИИ) оказывает заметное воздействие на образование и обучение. В данной статье рассматривается использование персонализированных образовательных подходов в неформальном IT-образовании, особенно среди инженеров, обладающих глубокими знаниями в смежных технических областях. Основное внимание уделяется роли виртуальных наставников на базе генеративного ИИ, которые сравнивают учебный опыт опытных инженеров с обучением новичков. Кроме того, обсуждаются стратегии поддержания мотивации, выявления сильных и слабых сторон обучаемых, а также нахождение баланса одновременного обучения с текущей профессиональной деятельностью. В статье также затрагивается переход специалистов из не-IT областей и растущая тенденция к генерализации в эпоху ИИ. Включены практические примеры для иллюстрации реальных применений этих концепций.

Ключевые слова: искусственный интеллект (ИИ) в образовании, генеративный искусственный интеллект, персонализированное обучение, виртуальный ментор, неформальное обучение информационным технологиям, баланс работы и учебы, образовательные технологии.

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Մայիլյան Արթուր

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Ամփոփում

Տեղեկատվական տեխնոլոգիաների (SS) ոլորտը արագորեն զարգանում է, և գեներատիվ արհեստական բանականությունը (AI) փոխում է կրթության ու ուսուցման լանդշաֆտը: Այս հոդվածը ուսումնասիրում է անհատականացված ուսուցման ուղիների օգտագործումը SS ոչ ֆորմալ կրթության մեջ, հատկապես զուգահեռ տեխնիկական ոլորտներում խորը գիտելիքներ ունեցող ինժեներների շրջանում: Քննարկման կենտրոնում է վիրտուալ մենթորների դերը՝ հիմնված գեներատիվ AI-ի վրա, փորձառու ինժեներների ուսուցման փորձի համեմատումը սկսնակների ուսուցման փորձի հետ: Բացի դրանից՝ հոդվածում քննության են առնվում մոտիվացիան պահպանելու, ուժեղ և թույլ կողմերը բացահայտելու և ուսումնառությունը ընթացիկ մասնագիտական աշխատանքի հետ հավասարակշռելու ռազմավարությունները: Հոդվածում նաև ուսումնասիրվում է ոչ SS ոլորտներից մասնագետների անցումը դեպի այս ոլորտ և AI-ի դարաշրջանում աճող միտումը դեպի ընդհանրացում: Գործնական օրինակներն ինտեգրված են՝ այս կոնցեպցիաների իրական կիրառությունը ցույց տալու համար:

Բանալի բառեր *՝ արհեստական բանականությունը կրթության մեջ, գեներատիվ արհեստական բանականություն, անհատականացված ուսուցում, վիրտուալ մենթոր, ոչ ֆորմալ տեղեկատվական տեխնոլոգիաների ուսուցում, աշխատանք-ուսում հավասարակշռություն, կրթական տեխնոլոգիաներ:*

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