

Students' Perceptions of the Future of Devin AI: A Case Study at IPB University

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Abstract

Devin AI is an autonomous artificial intelligence assistant referred to as an "AI software developer" and claimed to be capable of building websites and applications, completing complex programming, and training its own AI models. Cognition Labs has released a trailer for Devin AI on YouTube. This research analyzes the responses of Software Engineering Technology students from the Vocational School of IPB University regarding the Devin AI trailer. Responses were collected via Google Forms from students of classes 59, covering familiarity, benefits, and concerns about using Devin AI. The responses varied, with both positive and negative feedback. Devin AI is considered capable of accelerating the software development process and allowing developers to focus on strategic and creative elements. 60% of respondents are not afraid that Devin AI will replace the position of Developer, seeing it as a companion or considering it a scam. Conversely, 40% are concerned that the Developer position will be replaced by Devin AI.

Keywords: Response Analysis, Artificial Intelligence, Devin AI

I. INTRODUCTION

Devin AI, developed by Cognition Labs, represents a groundbreaking advancement in AI technology, designed to autonomously handle coding, web design, and even project management tasks. Its ability to generate code, debug existing applications, and learn from its own mistakes through machine learning algorithms promises to

streamline software development significantly [1][2][3]. Despite concerns about job displacement, human-AI collaboration, Devin AI is positioned as a partner rather than a replacement for human developers. By automating routine tasks and enhancing data analysis, it enables developers to focus on higher-level thinking and creative problem-solving. This collaboration aims to elevate software development by leveraging AI's capabilities alongside human creativity and expertise [2][4][6].

The introduction of Devin AI also raises important ethical questions, particularly regarding job displacement and the ethical implications of AI-driven decision-making. Responsible implementation and oversight are crucial to mitigate these concerns and ensure AI technologies like Devin are used ethically and sustainably [3][7]. As Devin AI continues to evolve, it has the potential to redefine standards in software development, making it more accessible and efficient. Future research aims to delve deeper into its impacts across various domains and to establish frameworks that promote ethical AI deployment while fostering technological innovation [4][5][6][8].

II. LITERATURE REVIEW

A. Devin AI

Devin AI is an artificial intelligence system designed to automatically process and analyze data to generate useful insights and facilitate decision-

making. Devin AI combines machine learning techniques, natural language processing, and data analytics to provide solutions tailored to the needs of businesses and individuals. With the capability to handle large and complex data, Devin AI is used in various fields, including business, healthcare, education, and technology, to enhance efficiency, accuracy, and productivity [1][3][8].

B. Questionnaire

A questionnaire is a form of data collection tool, while the data sources are ordinary people called respondents. The questionnaire contains a number of questions for the respondents to obtain research data aimed at detecting interests, attitudes, and habits. A questionnaire consists of a list of questions to gather research data, which is distributed to respondents to be filled out and then returned to the researcher [9][10].

III. METHODOLOGY

A. Research Design

This research method employs a quantitative approach by distributing a questionnaire via Google Forms to students in the Software Engineering Technology program at IPB University's School of Vocational Education to obtain the necessary data for the study. The aim is to expedite access to the required information from respondents, which is automatically stored in Google services. The questionnaire collection method is described as a data collection technique utilizing forms consisting of written questions posed to individuals to obtain the responses and information needed by the researchers. Multiple-choice questions in the questionnaire are similar to traditional multiple-choice questions but presented in an essay format. In this format, respondents are typically allowed to select only one answer [9][11][12]. The utilization of questionnaires was chosen as an evaluation medium because they can be easily accessed by everyone. The questionnaire will automatically store participant responses and can be downloaded in Excel format, complete with the obtained scores [9][13][14][15]. We limit the discussion of Devin AI to trailers and questionnaire results only because its scope is broad, extensive, and complex.

B. Participants

The participants of this research are students of IPB University from the software engineering technology program at 2nd year of the School of

Vocational Education. A total of 46 students have participated by completing this research questionnaire.

C. Data Collection

The questionnaire was distributed online using Google Forms and consisted of questions in the form of multiple-choice, linear scale, and short answers. The variable measurement scale utilizes a Likert scale. The research analysis method is conducted by: 1) grouping the average scores of student responses on the questionnaire based on Likert scale categories, 2) finding the percentage of response results, and 3) interpreting student responses based on percentage results. After processing the research results, the next activity is to direct the data analysis towards the conclusions to be drawn, usually placed towards the end. All of responses and answers from others will be automatically collected, organized, analyzed, and stored by the Google Form application quickly and securely [9][11][12][16].

IV. RESULTS AND DISCUSSION

The research survey utilizes Google Forms as a tool to collect data from respondents. The results obtained from the analysis of the collected data are as follows:

The demographic results of valid respondents, with a total of 45 students, can be seen in Figures 1 and 2 below.

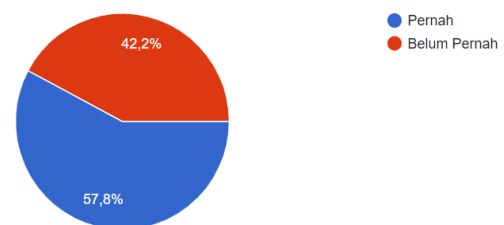


Figure 1. Have respondents ever heard about Devin

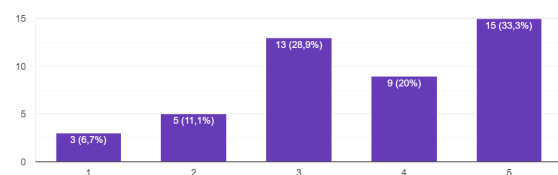


Figure 2. How familiar are respondents with Devin

Based on the results shown in Figure 1, 57.8% (26 students) have heard about Artificial

Intelligence named Devin, while 42.2% (19 students) have not. Additionally, the results displayed in Figure 2 reveal that 3 students are very familiar, 5 students are familiar, 13 students are quite familiar, 9 students are less familiar, and 15 students are unfamiliar with the new Devin AI technology.

A. Qualitative Analysis

Qualitative analysis of students' responses regarding Devin AI's ability to replace the role of software engineer, several key viewpoints are revealed:

a) Limitations of Devin AI in Replacing the Role of Software Engineer

Some respondents stated that Devin AI is not yet capable of fully replacing the role of a software engineer. This is due to several limitations that can only be overcome by humans. One respondent wrote, "In my opinion, for now, Devin AI is still unable to replace the software engineer role because there are some things that only humans can do. Although Devin can create a program, the program will not be 100% accurate according to desires, and this is where software engineers still need to play a role."

Although Devin AI shows great potential in assisting and speeding up software development processes, limitations in terms of accuracy, contextual understanding, problem-solving, creativity, and collaboration indicate that the role of human software engineers is still crucial and cannot be fully replaced. AI and humans can complement each other, with AI handling routine tasks and humans focusing on aspects requiring intuition, deep understanding, and social interaction.

b) Benefits of Devin AI in Automating Repetitive Tasks

Some respondents see the potential of Devin AI as an interesting solution for automating repetitive tasks. "I think Devin AI's ability as a substitute for Software Engineer could be an interesting solution, especially in automating repetitive tasks and freeing up time to focus on more complex things," wrote one student.

Devin AI brings many benefits in automating repetitive tasks in software development. By improving time efficiency, consistency, accuracy, and productivity, and reducing manual workload, AI enables software engineers to focus on more complex and creative aspects of their work. Increased

development speed, code maintenance ease, and development team scalability are some additional significant benefits. Continuously learning and improving, Devin AI offers increasingly effective solutions for handling repetitive tasks, bringing long-term advantages to teams and software development projects.

c) Neutral Views towards Devin AI

Some respondents feel less bothered by Devin AI's capabilities, believing that AI is merely a supporting tool. One respondent stated, "It's normal because, in my opinion, AI is just a support for our work. It's just a matter of how we respond to it."

Neutral views towards Devin AI reflect an attitude that is not fully supportive or opposed to its use in software development. This approach considers both the advantages and limitations of Devin AI, as well as its impact on the technology industry and the human role within it.

d) Devin AI as an Assistant, Not a Replacement

Some responses indicate a view that Devin AI is more suitable as an assistant than a replacement. "In my opinion, it's not a replacement, but rather an assistant because, in any case, to operate Devin AI, you need a pilot who understands coding," said one student.

Devin AI as an assistant in software development means that this AI is used to support and complement the work of human software engineers, not to replace them entirely. This approach emphasizes collaboration between AI and humans, with a focus on increasing productivity and quality through automating certain repetitive or time-consuming tasks.

e) Critical Views towards Devin AI

One critical response mentions that Devin AI's capabilities are still far behind other AI tools. This respondent wrote, "Devin is like a clown. Devin's abilities are nothing compared to an AI photo replacer and generator. And it's kind of funny to see Devin being hyped up like snacks then many people who just jumped into programming got demotivated and wanted to quit."

Critical views towards Devin AI highlight the importance of understanding the limitations and risks associated with using AI in software development. Limitations in contextual understanding, dependency on data and algorithms, security and privacy risks, as well

as impacts on jobs and creativity are some aspects to consider. Although Devin AI has great potential to improve efficiency and productivity, it is important to monitor and manage its use carefully to ensure optimal results and reduce negative risks. A combination of AI and human intervention is still needed to achieve balanced and effective solutions.

B. Qualitative Analysis

Qualitative analysis of students' responses regarding Devin AI reveals diverse and complex viewpoints. Here is a summary of findings from some student responses:

Many students are optimistic about Devin AI as a promising tool for the future of software development, appreciating its ability to automate repetitive tasks to increase efficiency and productivity. However, there are also concerns about excessive reliance on AI, especially regarding its limitations in understanding contexts and nuances that can only be understood by humans.

a) Devin AI's Capability and Concerns about Job Replacement

Some students are impressed by Devin AI's capabilities, considering it to surpass other AIs like Chat GPT. One respondent stated, "Devin AI's capabilities exceed those of other AIs that we know of and are emerging today; examples are Chat GPT and the like. Devin AI's capabilities are terrifying considering this AI is different because it is specialized in mastering the field of programming and is feared to replace the position of developers. However, I am not sure if Software Engineers will be replaced by it."

This respondent also mentioned speculation about Devin AI being a scam, reflecting doubts about the validity and claims of Devin AI's capabilities. Students' views on Devin AI reflect admiration for its technical capabilities along with concerns about its impact on developer jobs. Devin AI is recognized to have significant advantages in programming, which can enhance efficiency and productivity. However, there is also uncertainty and doubt about whether this AI can truly replace human software engineers altogether. AI's limitations in contextual understanding, creativity, and solving complex problems emphasize the importance of the continued human role. Speculation about the validity of Devin AI suggests that, despite rapid

advancements in AI technology, skepticism persists, and there is a need for critical oversight and assessment of claims made about AI capabilities.

b) Mixed Feelings of Admiration and Concern

Most students express mixed feelings about Devin AI. They acknowledge its potential to enhance efficiency through automation but also worry about its impact on human jobs. "Talking about Devin AI potentially replacing Software Engineer positions, I feel like it's a mix of admiration and concern. On one hand, AI's ability to automate and solve technical problems is truly admirable; it can make many tasks faster and more efficient. But on the other hand, there are also concerns about the fate of human jobs in that field. So, yeah, it's a mix of feelings—admiration for the technology, but also a bit of caution about its social impact."

The mixed feelings students experience reflect the duality in responding to technological innovations. On one hand, there is admiration for Devin AI's potential to enhance efficiency and productivity through automation and impressive technical capabilities. On the other hand, there are genuine concerns about the social and economic impacts, particularly regarding the threat to human jobs. These concerns highlight the importance of considering the long-term impacts of adopting AI technology and the need for appropriate strategies to address potential changes in the workforce and society as a whole.

c) Surprise and Doubt about AI

There are also responses expressing surprise and doubt about the impact of Devin AI on the software engineering profession. One respondent noted, "Of course, it's quite surprising because Devin AI's existence is like a threat to the existence of software engineers. However, no matter how smart AI is, there will always be shortcomings."

d) Level of Threat Posed by Devin AI to Software Engineers

60% of the respondents do not feel afraid of Devin AI's presence replacing Developer positions because some consider Devin as a companion to Software Engineers, while others think that Devin is declared a scam or fraud because its abilities are very different from AI in general. On the other hand, 40% of the respondents express fear and concern that

Developer positions will be replaced by Devin AI.

The perceived threat to software engineers due to the presence of Devin AI involves concerns about job loss and a decrease in the value of human work in this field. Although Devin AI has impressive technical capabilities in automating programming tasks, most still doubt its ability to fully replace human roles. Software engineers are not only responsible for writing code but also for understanding business contexts, collaborating with teams, and designing creative and innovative solutions. Therefore, even though Devin AI could change job dynamics, software engineers are still considered to have a crucial role in software development, with abilities that cannot be entirely replaced by technology.

C. Respondent Perspectives on Devin AI

a) Feedback on the Benefits of Devin AI in Education

The survey results indicate that several students believe that Devin AI can provide various benefits in the field of education. Some students believe that Devin AI can improve efficiency and effectiveness in the learning process, help solve academic task-related problems, and organize learning materials better. Additionally, Devin AI is considered highly useful in various technical applications, such as generating programming code, creating APIs, and deploying applications and websites. Devin AI is also seen as capable of quickly and accurately analyzing data, as well as answering various academic questions, thus saving the energy and time required by students.

On the other hand, some students are concerned about the negative impacts of using Devin AI in the field of education. Some of them argue that this technology can be used for illegal reverse-engineering, potentially harming the original developers of software. Furthermore, there are concerns that Devin AI could be used for hacking activities, endangering data and system security. These students also express that the use of Devin AI could diminish the importance of a developer's role in the real world, as tasks previously performed by developers can now be automated by this technology.

b) Respondents' Feelings When Using AI Technology in Academic Activities

Based on the survey, it was found that more than 97.8% of respondents feel comfortable

using AI technology to support their academic activities. This indicates a high level of acceptance towards the use of AI technology in the educational context. However, about 2.2% of respondents said that they feel uncomfortable using AI technology for their academic activities. Although this number is small, it is still important to pay attention to and understand the reasons behind their discomfort to ensure a more inclusive and supportive use of AI technology.

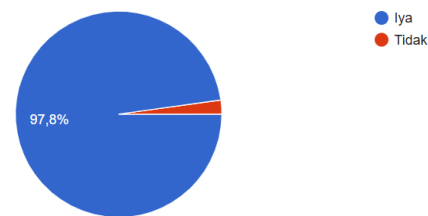


Figure 3. Respondents' Feedback on feelings when using AI technology in academic activities

c) Concerns of respondents regarding privacy or ethical issues in the use of AI on campus

It was found that 71.1% of the total respondents expressed concerns about privacy or ethical issues in the use of AI on campus, while 28.9% of other respondents stated that they did not feel worried. This finding indicates significant concern from some respondents about the privacy and ethical implications associated with the implementation of AI technology in educational environments. Meanwhile, some other respondents may consider these concerns insignificant, or they may have confidence that the measures taken by the institution are sufficient to address the issue.

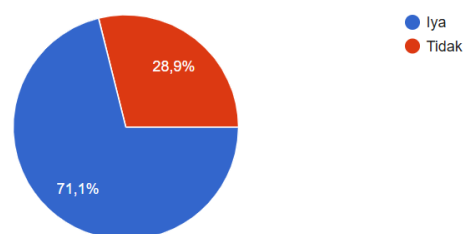


Figure 3.5 shows respondents' concerns regarding privacy issues related to AI.

d) Positive Impact of Devin AI

Devin AI provides significant positive impacts in software development. With its ability to

automate repetitive tasks, Devin AI improves efficiency in the development cycle, speeds up processes, and reduces manual workload. This not only helps save time and resources but also enhances overall productivity. Additionally, Devin AI delivers tangible benefits to individuals and businesses by providing innovative solutions and assisting in addressing complex software development challenges. With the adoption of Devin AI, developers can focus on more creative and strategic tasks, enhance the quality of the products produced, and accelerate the pace of innovation in the software industry as a whole.

e) Negative Impact of Devin AI

Devin AI has negative impacts that need to be considered in software development. One of the main negative impacts is the limitation of creativity possessed by Devin AI. Although capable of performing repetitive tasks well, this AI may be less proficient in facing tasks that require levels of creativity and human intuition. This can hinder AI's ability to solve complex problems and require creative thinking. Additionally, there are concerns about excessive dependence on AI like Devin, which can result in a reduction in human roles and involvement in the software development process. Thus, careful evaluation is needed in integrating Devin AI into software development to minimize its negative impacts.

It is important to thoroughly understand the capabilities, limitations, and potential risks associated with the use of Devin AI before deciding to adopt it, which involves conducting in-depth research to grasp how this technology works. For those planning to use Devin AI in their work or projects, developing the necessary skills to interact with and manage this technology effectively is essential; this may require training and acquiring new skills related to AI usage. Before fully relying on Devin AI for specific tasks, conducting a critical evaluation of its capabilities is crucial to determine whether it meets your desired needs and standards. Additionally, having a strong awareness of the ethical and privacy issues associated with using Devin AI is important, as you should understand how your data is used and what protections are in place to safeguard your privacy. While technologies like Devin AI can enhance efficiency, it is vital to recognize the essential role of humans in decision-making processes and creative solution

development, as collaboration with human counterparts can lead to better results. Moreover, continuously monitoring and evaluating the performance and impact of using Devin AI is necessary; pay attention to whether it meets your expectations and be prepared to make improvements if necessary. Finally, since the world of AI is constantly evolving with new technologies and updates, being open to change and innovation, as well as remaining prepared to learn and adapt to new developments in this field, is essential.

V. CONCLUSION

This study demonstrates that the use of AI technology, particularly Devin AI, has significant and complex impacts on education and software development. A survey of students from the Software Engineering Technology program at IPB University's Vocational School revealed generally positive attitudes toward AI in academic activities, though some expressed discomfort. Despite this acceptance, concerns regarding privacy, ethics, and the social implications of AI in the campus environment persist. The findings show varied opinions on Devin AI's ability to replace software engineering roles; while some respondents are optimistic about its potential to enhance efficiency and productivity, others express mixed feelings about its impact on jobs and highlight concerns about its creativity limitations and potential misuse in hacking. Ultimately, the study provides valuable insights for software developers, educators, and policymakers, emphasizing the need to carefully evaluate the social, ethical, and privacy implications of AI adoption in education, while balancing technological innovation with human interests to develop sustainable and inclusive solutions.

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