



# CAREER READINESS

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AI DEVELOPERS

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# INTRODUCTION

Today, AI is already personalizing our social media ads, driving, diagnosing patients in need, and so much more. However, none of this would be possible without the diligent work of AI developers, those who develop, design, and program artificial intelligence. AI innovators face numerous challenges in their daily jobs. As of right now, we use AI to program our robot to acknowledge obstacles, colors, and distance. From data privacy to the need for reliable algorithms, these engineers are at the forefront of a technology that has the potential to transform our world in countless ways.

ARTIFICIAL  
INTELLIGENCE IS  
THE FUTURE AND  
THE FUTURE IS  
HERE.  
-DAVE WATERS

Artificial intelligence will soon revolutionize our world in countless ways, which means countless job losses in nearly every field. With this information, our team was curious about the skills that would be in high demand in the next few years. If AI could do so much, what skills would be needed in the future?

But other than that what more is AI capable of? How do developers keep up with the ever-changing world? Our team is fascinated by the endless capabilities of artificial intelligence which is why we have chosen to AI developers as our selected career pathway.



## “THÉÂTRE D’OPÉRA SPATIAL”

THE AI GENERATED ART  
THAT WON FIRST PLACE IN AN ART FAIR!

# DEVELOPMENT OF AI

Figure 1:

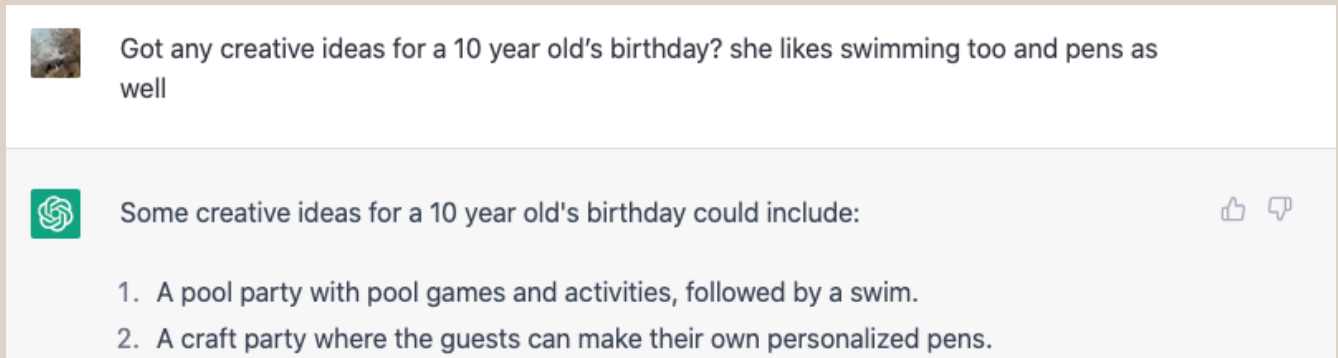


Figure 2:

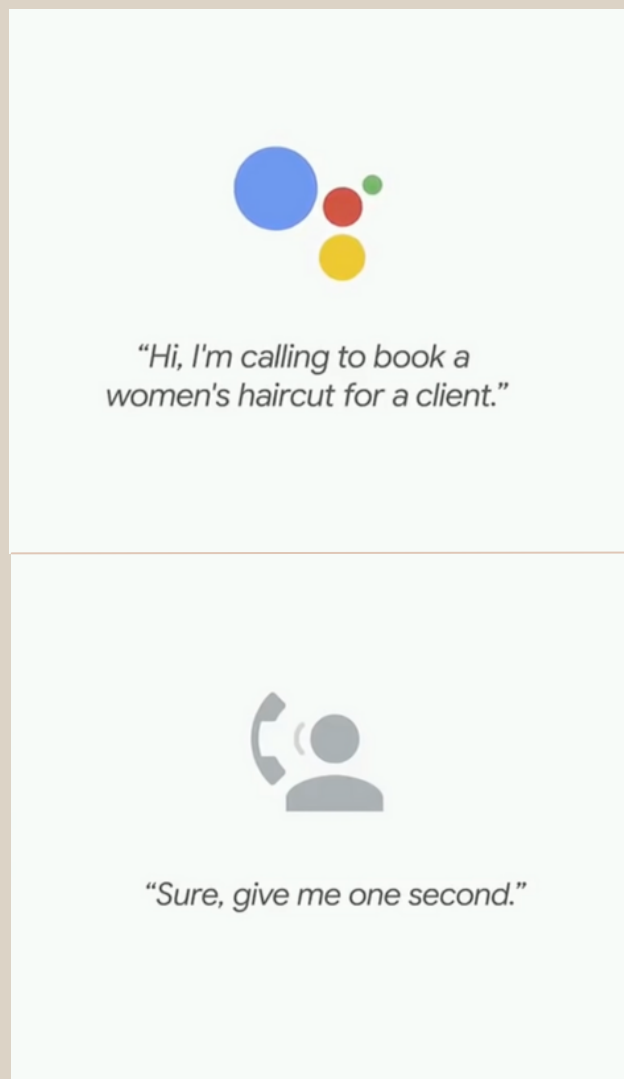


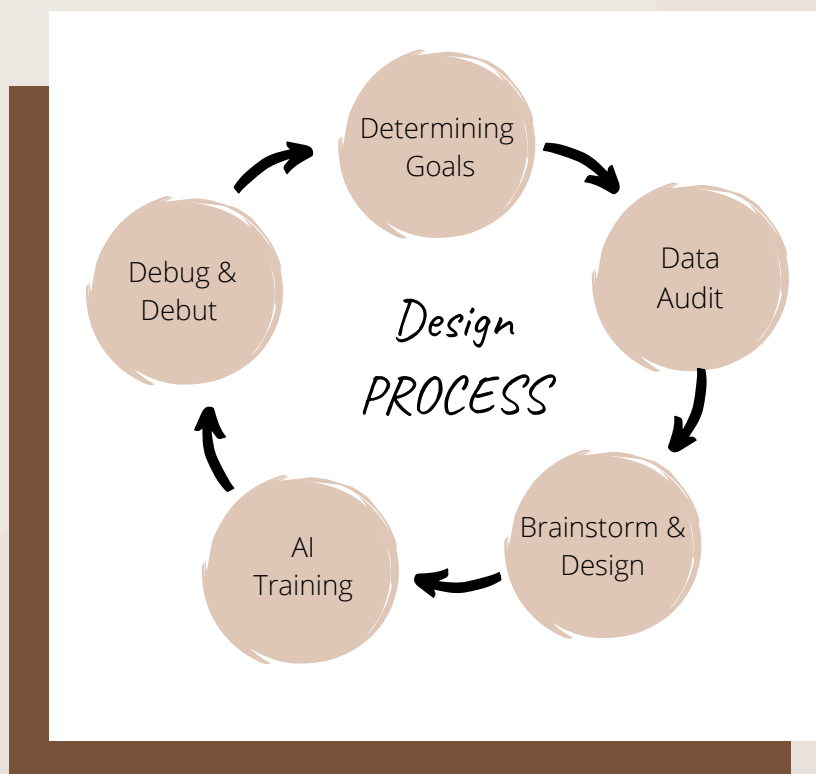
Figure 1: This photo is a screenshot of ChatGPT, an AI model designed for conversational responses. ChatGPT can achieve marvelous things from explaining quantum physics to writing original stories!

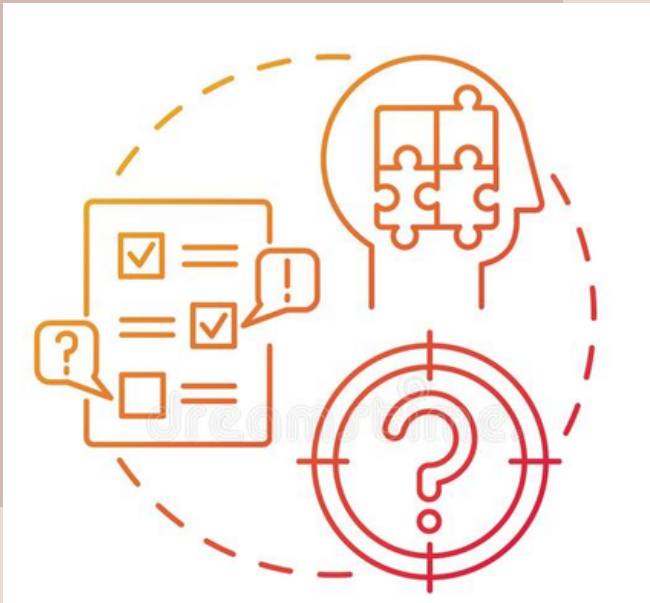
Figure 2: This screenshot was taken from a video that was shared on Youtube back in 2018. The video demonstrated the Google Assistant calling a real hair salon to schedule a haircut.

**IF THE DEVELOPMENT OF  
AI IS SO IMPRESSIVE IN  
JUST A FEW YEARS, WHAT  
SKILLS WOULD BE IN  
DEMAND IN THE FUTURE?**

# DESIGN PROCESS OF AI

In order to assimilate how AI developers are able to create such complex designs, we've explored many online resources. The one we found especially captivating was the article by the company Manceps, an Artificial Intelligence firm that examined the standard design process of AI developers. To gain further insight, our team decided to research information on Nvidia, another technology company that makes graphic processing units. By learning from both Manceps and Nvidia, our team was able to acquire a comprehensive understanding of how their engineering design processes work.





## Defining Problems 1

**First, an AI engineer's design process, like many others, begins with defining the problems the AI needs to solve.** This allows engineers to fully grasp what problem they are dealing with. This step is vital as a precise goal assists AI developers in creating a stronger foundation for their future work.



## Data Audit 2

**Next, AI engineers consult the data available.** Datasets may include labeled images, recordings, text, or anything that could train the AI to identify objects. Since AI development relies heavily on the training stage of the AI, the data chosen must be accurate and broad.

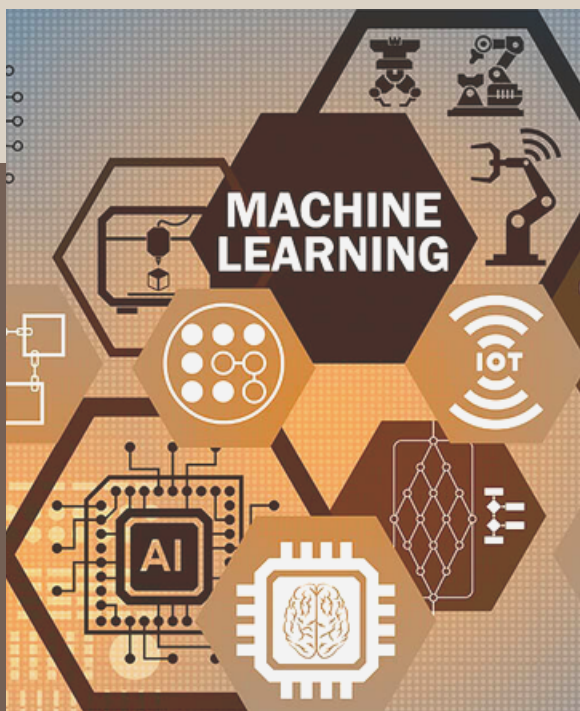
# Brainstorm & Design 3

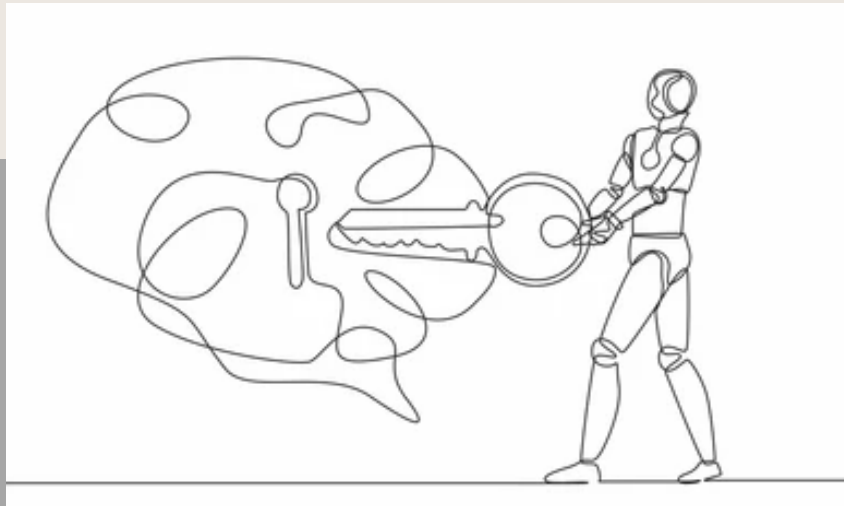
**In addition, AI's design process includes brainstorming, visualizing, and designing.** By utilizing software such as Autodesk, AI design teams can brainstorm, visualize, and design with efficiency, turning far-fetched ideas into reality. In this step, engineers can calculate every possibility to produce the best design during the brainstorming period.



# AI Training 4

**Moreover, engineers start to train the AI model.** There are three main steps in training AI machines. To start off, the AI is provided with thousands of databases for basic training. Next is validation; this step ensures that the results are satisfactory. Finally, the AI is brought in for real-life testing, to determine possible errors or gaps inside the code or training.





## 5 Debug & Debut

**Lastly, AI developers debug problems until it's ready for public use.** This is often the most difficult step in AI development as AI developers must debug and optimize the model, this stage is also for training the AI. As AI directly interacts with humans, this cycle is repeated until the AI is prepared for all circumstances. Finally, when the AI model is fully developed, it is brought to the world for the public to use.



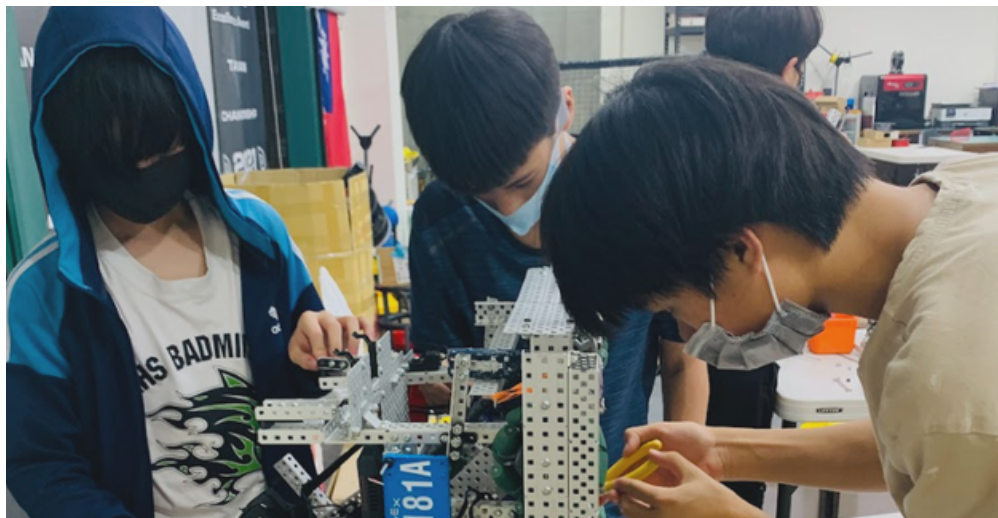
OUR OWN

# ENGINEERING DESIGN PROCESS

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As we learned more about the AI developers' design processes, we have come to the conclusion that our design processes are similar in some aspects. For one, **we both have a concise goal that needs to be met as well as different ways to achieve this goal.**

On the other hand, **our ideals of enhancing the user experience differ from those of developing AI.** As we write code for our robot, our target audience is the drivers themselves. This means that our code should be personalized for **our drivers themselves** and be based on the convenience or habits of our drivers. However, AI developers alter their products to accommodate **all users**. Furthermore, in a professional environment, AI engineers cannot debut their work until it is nearly flawless and can be equipped for all customers. In short, due to the difference in our target audience, AI developers' engineering design process also differs from our own as it includes more steps to acquire information on their target audiences whilst we can simply question our driver for info.



# VEX & OUR FUTURE

In a world that will only become more dependent on AI, **AI could replace humans in a slew of fields.** This means that many of the skills taught in school today won't be necessary in the future. However, **interpersonal skills, such as communication, teamwork, and listening skills will still remain inevitably important as it is a crucial part of problem solving.**



So, to nurture future STEM engineers, VEX Robotics gives teams a challenge each year that requires collaboration both in their own individual teams as well as teamwork with another unfamiliar team. This challenges students to put aside all differences and align together to complete the task in order to acquire the best results. **In conclusion, in our future careers, not only in STEM but in all jobs, interpersonal skills are, and will be, inevitably important.**

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