Artificial Intelligence Essentials: Smart Assistants

Course Overview

Course Overview

Hello, everyone. My name is Navidut Tauhid, and welcome to my course, Artificial Intelligence Essentials: Smart Assistants. I'm a unified communication and collaboration consultant and a cloud architect. In today's digital age, artificial intelligence is changing the way we interact with technology and conduct our daily tasks. In this course, we are going to learn all all about artificial intelligence smart assistants. Some of the major topics that we will cover include different AI smart assistants and platforms for business, benefits of AI smart assistants, ways to interact with AI smart assistants, its capabilities and different use cases and the future of AI smart assistants. By the end of this course, you will have a solid understanding of the current capabilities of AI smart assistants and their potential for future advancements. Before beginning this course, familiarity with basic of AI is recommended. I hope you'll join me on this journey to learn and explore different smart assistants with the Artificial Intelligence Essentials: Smart Assistants course, at Pluralsight.

Understanding AI Smart Assistants

Module Overview

Hi, and welcome to this course titled Artificial Intelligence Essentials: Smart Assistants. My name is Navidut Tauhid, and I'm a computer engineer with more than a decade and a half of experience in the tech industry. I've been a cloud architect and a unified communication and collaboration consultant. And now I'm here to be your guide as we explore the exciting world of AI smart assistants. In this module, we're going to dive deep into the fascinating world of AI smart assistants and discover how they can help any business. We'll explore the different smart assistant devices, tools, and platforms available in the market today and uncover the many benefits that AI smart assistants offer, especially for business users. We'll also talk about different ways to interact with AI smart assistants from voice commands to chat‑based interfaces. So get ready for an exciting journey into the world of AI smart assistants. Let's get started.

Introduce AI Smart Assistants for Business

So, what is a smart assistant, and how does artificial intelligence work for smart assistants? AI, artificial intelligence, smart assistants are computer programs that use artificial intelligence to assist you with everything you need, whenever you need on different platforms and as different tools. AI smart assistants can perform and automate a wide range of tasks like calendar management, email and meetings, customer service and support, data analysis and reporting, and project management to help you focus and prioritize your core work. You can talk to the smart assistant by saying a wake up or activation word. For example, you can say to the Amazon Echo device, Alexa, check my calendar today. Or you can talk to the Apple phone by saying Siri, set a reminder after 15 minutes. Or you can try saying okay, Google, call my boss to your Android device. And voila, the smart assistant will respond with the information you need. There are some other smart assistant that can help you with your meetings, taking down notes, and transcribing them so you can skim through them later when you need them. You may even be using some of the voice‑activated smart assistants like Amazon's Alexa, Apple's Siri, Google Assistant, Microsoft Cortana or Samsung Bixby. And there are chat‑based smart assistants too. That can be integrated with different platforms to allow users to interact with them using voice commands as well. Some smart assistants can assist you with content creation like writing an impressive email or even creating blog articles. And this is just the beginning. Have you ever heard of ChatGPT? This AI‑based tool is taking the market by storm. It's a language model created by OpenAI, and it's like talking to a friend. It responds to your question with almost humanlike intelligence. Though it's very popular nowadays, there is still a long way to go. ChatGPT is different from other smart assistants like Alexa, Siri, and Google Assistant in terms of the purpose itself. While those assistants have a wide range of features and abilities, ChatGPT is primarily focused on providing response to natural language questions or prompts and providing more information. Using its API, you can integrate ChatGPT into various platforms and applications, including chatbots and smart speakers to enable smart assistant functionality. It provides natural language understanding and generation capabilities, which are the key components of any smart assistant.

Selecting the Right AI Smart Assistants

Now you know what an AI smart assistant is; however, with so many options available, how can you choose the right AI smart assistant for your organization? Which one is the best fit and serves the specific purpose? Choosing the perfect AI smart assistant for your organization can be tricky. It's important to choose a smart assistant that meets your business requirements and does exactly what you're looking for. Are you in need of an assistant that can schedule and enhance your meeting experience? Do you find it overwhelming to manage your calendar? Or perhaps one that can handle customer service and support or maybe the one that controls smart devices in your office. Simply **start by identifying the requisite tasks and processes most suitable for automation or assistance**. This will narrow down your options and ensure that you choose the right AI smart assistant. It's vital to consider all the factors when selecting an AI smart assistant, including its ability to integrate with your existing systems like Salesforce, CRM, project management tools like Asana, meeting solutions like Teams, Zoom, Cisco Webex or Google Meet or any other job‑specific tools and application that your business uses currently. **Make sure that the assistant you choose can integrate with them all.** Look for an assistant that is reliable and has a proven track record of uptime and performance, as well as strong security measures to protect your confidential data and privacy. And of course, it could be within your organization's budget. AI smart assistants can vary widely in price. While it may be tempting to choose the cheapest option, keep in mind that it may not always be the best fit. Consider the value of the smart assistant and the benefits it brings to your business. Notably, many AI tools offer trials before you commit to any charges. You should research and compare different AI smart assistants and read reviews or case studies to get a sense of which ones are the best fit for your business. Remember, every organization is different, and their employees may need a different solution. With the right AI smart assistant, your business can do wonders. Recently, my friend suggested an all‑in‑one planner, but I really got intimidated by the learning required for the software. Play intelligent while implementing AI smart assistants. So before you decide to go ahead, provide your employees with the training and support they need to use the assistant efficiently. Introducing more tools often confuses employees rather than proving beneficial, especially those who are not from an IT background.

AI Smart Assistant Devices and Platforms

Now, let's take a closer look at some of the most popular AI smart assistants, their features, and how they can benefit the individual users and improve the team's overall productivity. Topping the list is Amazon's Alexa, which needs no introduction. It is integrated into Amazon's Echo and Dot devices, as well as other third‑party devices. Alexa is a voice‑activated assistant that can be used to control smart home devices, listen to your favorite music, set alarms, and answer general questions. It is activated by saying the wake word or Alexa by default. Alexa can be used to make phone calls and send text messages. It can also be integrated with other applications and services such as Spotify and Uber to perform additional tasks. Next on the list is Google's G Suite assistant. It's available for G Suite users and can be used to schedule meetings, create and edit documents, and answer questions. It can also be integrated with other G Suite applications such as Gmail, Calendar, and Drive to help users stay organized and productive. It can be accessed via the web or mobile apps, and it can be integrated with Google Meet to schedule and join calls. It's available on Android device, and you might have already used it before. Then you have the mighty Apple Siri for Apple users. It is exclusively available on iPhone, iPad, and Mac computers. Siri is a voice‑activated assistant that can be used to send messages, make phone calls, set reminders, and answer questions. It can be integrated with other applications and services such as Apple Music and Maps. Microsoft Cortana was launched back in 2014. It is available on a wide range of devices, including Windows PCs, Xbox, and smartphones. Cortana is a voice‑activated assistant that can help users manage their calendars, set reminders, and give updates on events and meetings. Cortana can also help users create and manage emails, to‑do lists, and notes. It can be integrated with other applications and services such as Spotify and LinkedIn. One other popular smart assistant is Samsung's Bixby, which lets you talk to your Samsung smartphones, TVs, and smart home appliances. For example, you can say hi, Bixby. Remind me to call my friends when I get to work, and Bixby will make a list for you and remind you when you get to the office. Bixby can be integrated with other applications and services such as Samsung Health and SmartThings. Specific smart assistants are designed for specific jobs, so be specific. The idea is don't buy an expensive car if you need a sports bike. I personally know a case where IT sales guys have sold unnecessary networking devices to an organization, which were eating dust in their inventory later. For example, if your organization is a healthcare provider, AI smart assistants such as Nuance's Dragon Medical can be used to transcribe medical notes, schedule appointments, and access patient records. Similarly for the retail industry, IBM's Watson Assistant can be used to help customers find products, place orders, and resolve their issues. Likewise, AI smart assistants such as UiPath's robotic process automation can be used to automate routine tasks and improve efficiency in manufacturing environments. Fireflies can improve your meeting experience with Zoom, Microsoft, etc. Especially after COVID, there have been lots of meeting, and it gets really tough to focus on your core work and attend fewer meetings. Fireflies are one solution that provides a meeting transcription feature, and it has notes‑taking ability that is based on automatic speech recognition technology. You can search through the transcript and find action items, next steps, dates, and other key highlights during the meeting. Fireflies automate data entry in different application post meeting like Salesforce, Slack, Dropbox, and Asana. Apart from these usual jobs, AI assistant helps you with content writing, creating blog articles, videos, images, icons or even websites.

Benefits of AI Smart Assistants for Business

Now let us explore some benefits that smart assistants are already helping businesses with. AI smart assistants automate routine tasks and provide quick access to information, freeing up employees to focus on more complex or high priority tasks. For example, a customer service representative could use an AI smart assistant to quickly look up the customer information or answer frequently asked questions, allowing them to handle more customer queries in a shorter span of time. AI smart assistant can also help business streamline processes and reduce errors, leading to improved efficiency and productivity. AI smart assistants can easily share and access information on demand and let the team communicate with each other with relevant data. This helps in better collaboration and decision making, as well as reduces the need for in‑person meetings or phone calls. For example, a sales team in your office could say schedule a meeting with such and such person according to their calendar as soon as possible and attach so and so documents or slide decks to the meeting. AI smart assistants provide quick and accurate responses to customer inquiries, leading to improved customer satisfaction and loyalty and eventually more business. You can manage and track customer's interaction and get valuable insights into the customer needs and preferences. For example, a retail company could use an AI smart assistant to answer customer questions related to products, process orders, and resolve their issues using chatbots or automated calls, improving overall customer satisfaction and experience. AI smart assistants are capable of analyzing a large amount of data and providing insights and recommendations to help businesses make better decisions. They help businesses monitor and track key performance indicators such as sales or customer satisfaction and identify trends or issues. For example, a marketing team could use an AI smart assistant to analyze existing customer data and identify a shopping pattern, and that could help them building marketing strategies for their upcoming products.

Ways to Interact with AI Smart Assistants

You might have already used at least one of the AI smart assistants, the voice‑based AI smart assistants are devices or a software program that use natural language processing, NLP, and machine learning to recognize and respond to voice commands. They're activated by saying a specific wake‑up word such as Alexa or hey, Siri to perform a variety of tasks like Alexa, where is the nearest grocery shop? Or hey, Siri, play some soothing music. Or okay, Google, turn on my geyser or switch off my AC. To activate a voice‑based AI smart assistant, you need to say the assistant's wake word or press a button on the device. The wake word is a specific word or phrase that the assistant is programmed to recognize as a signal to start listening to your command. For example, to activate Apple Siri, you would say, hey Siri. Once a voice‑based AI smart assistant is activated, you can give it a command or ask what you need. Just speak clearly and naturally using the same language and tone you would use to talk to your friend. For example, you could say okay, Google, play some motivational music on YouTube Music or hi, Bixby, what's the weather like today? The assistant will then process your request and provide a response to perform the requested action. Voice‑based AI smart assistant can often be customized and managed through a companion app or through voice commands. For example, you can change the assistant settings such as the wake word like computer, Echo or Amazon, or you can control the volume or speed with which it response. Amazingly, you can customize your assistant responses. For example, Alexa, who's the best techie? And Alexa would respond, "I just compared all the geeks in the history, and my conclusion is that you're the best." You can also manage the privacy setting on it as well like automatically deleting your recordings.

Module Summary

All right, we discussed quite a lot of stuff related to AI smart assistants for business. These are artificial intelligence power tools that can help businesses automate tasks, improve productivity, and provide better customer service. We learned that these AI assistants are available on a variety of devices and platforms such as smartphones, smart speakers, and computers. The benefits of using AI smart assistants in a business setting include increased efficiency, cost saving, and improved customer satisfaction. We also discussed different ways to interact with the AI smart assistant that is through voice commands, which allows users to speak naturally and perform tasks handsfree. Another way is through text‑based inputs such as typing a query into a chatbot. This is it for this module. See you in the next one.

How AI Smart Assistants Work

Working of AI Smart Assistants

In the last module, we learned how we interact with the AI smart assistant and conversational AI like chatbots or smart speakers. Let's dig deeper into what happens behind the scenes. How does it process those commands, and how does it find the app responses, and how does it speak so naturally like a friend? What are they capable of, and what are some use cases? And how these versatile devices will become even better with the advancement of technologies. To understand how these AI smart assistants work technically, we will have to understand the underlying technology behind it. It's a component that work together to provide us with solutions as a unit. The end user has no idea how complex and parallel processing that happens deep inside these AI‑powered smart boxes. Let's start with natural language processing, NLP. It is a field of artificial intelligence that helps smart assistants talk like humans using natural language. It lets the smart assistant understand the meaning of words and sentences so they can respond effectively. NLP has these components used by the versatile assistants. First is automatic speech recognition, ASR, which listens to and converts our voices. The next step is natural language understanding, NLU, which helps the smart assistants understand what you're saying. Then you have natural language generation, NLG, which is responsible for generating the speech as a response to your command. And in the end, you have speech synthesis, which is to produce natural, human‑like voice output. Now, let's discuss each of these NLP components more in detail. ASR, automatic speech recognition. Using ASR, the spoken words are converted to text using speech recognition techniques. ASR has developed a lot and still developing with so many beautiful languages around. Remember that any language has different dialects, vocabulary, grammar, and pronunciation, so it's evolving with time. And the second stage is natural language understanding, NLU. After the speech is converted to text, the smart assistant uses different tools to understand these words and its meaning, the structure of the sentence, and figure out what people are talking about. Parts of speech like nouns, verbs, objectives or what the subject is and who the object is all are determined here. NLU also determines the user's actual intent like the purpose behind the command, contextual understanding of the statement in regards to the background information or the circumstances, and the user's positive or negative sentiment. After NLU and intent detection stage comes the natural language generation, NLG. Once the text is analyzed, the NLG component generates the response in a natural language based on the analysis. This step includes text summarization, text generation, and dialogue systems. With this tool, the smart assistant generates the speech. Think of a situation when you try to speak a new language and you use the words to make sentences in your mind before you speak them out. And the last is speech synthesis. After the response, speech is generated by NLG, and it can be converted into an actual voice that sounds natural. This process is known as prosody, and it includes intonation, stress, and rhythm. Speech synthesis has come a long way in recent years, and the technology has really improved. With deep learning‑based models, speech synthesis has become more natural and human‑like. The story does not end here. There are more smart technologies that make these assistants smarter. Another field of AI is machine learning. It is a type of AI that enables a machine to learn and improve based on data and experience. Machine learning is used by voice‑based AI smart assistants and conversational AI to enable them to learn from data and adapt their responses and behavior over time. The more you use the device, the better it understands and responds to you. Deep learning is more advanced than traditional machine learning. It uses neural networks, a system designed to work like a human brain to learn from and make decisions based on data. It makes smart assistants more accurate and better at understanding voice commands and questions.

AI Smart Assistants Business Capabilities and Use Cases

Voice‑based AI smart assistants are increasingly being used in businesses to improve efficiency, reduce cost, and enhance customer experience. As anticipated by many surveys, 3 to 5 years down, the market share of these assistants will shoot up to around $35,000,000,000. Let's discuss some of the AI smart assistants use cases and capabilities. One common use case for voice‑based AI smart assistants in a business setup is customer service and support. Many organizations are using chatbots powered by conversational AI to answer customer inquiries and provide support over a chat platform. Remember the last time you had to wait in a call queue to get some simple information? AI‑based bots improve the speed and accuracy of customer service by reducing manual workload. According to a study by Oracle, 75% of customers prefer chatbots for quick and simple inquiries, and 53% of companies already use chatbots. Some of the AI‑based chatbot smart assistants are Alexa for Business, Zendesk Support Suite, Intercom, Birdeye, etc. Voice‑based AI smart assistants like Alexa for Business or Google assistants are being used to schedule and manage meetings by both individuals and in a conference room setup. AI assistants are used to sending reminders and meeting updates to the attendees. It saves time and reduces the need for manual scheduling and coordination. For example, instead of hands and feet support people on site, making conference room reservations, turning the lights on or off, and testing the conference room devices, smart assistants can do it all for you. More of our users can just say "Alexa, join the meeting" for a complete hands‑free meeting experience without remote control and manual dialing into meetings. Voice‑based AI smart assistants automate data entry and management tasks too. For instance, voice‑based AI assistants are capable of transcribing meeting notes, entering data into a spreadsheet or even reading from it. Let's take one more example. If you have a spreadsheet with employee's details, you can upload it into Alexa for Business knowledge skills, then you can ask, Alexa, what's John Doe's start date and phone number? Or Alexa, how many network engineers are there in New York? Or get some statistics like Alexa, what's the average tenure for software developers? Or ask a reasoning question, Alexa, is Jane Doe a software developer? As they say, marketing is all about creating a relationship and not just a transaction. Imagine the power of having a voice‑based AI smart assistant handle all your sales and marketing tasks for you for customer‑tailored recommendations and in‑depth product knowledge. According to a study by Adobe, 43% of companies already use voice‑based AI assistants for sales and marketing. The implementation of voice‑driven assistants is a real‑time game changer, which can amplify customer experience and boost businesses to upsell and cross sell their products. Now, let's discuss some of the use cases of smart assistants for different businesses. Amazon's Alexa. Amazon has developed multiple Alexa skills, which are third‑party applications to extend the functionality of Alexa, including customer service and support. For example, an American bank, Capital One, has an Alexa skill called Capital One skill that allows customers to check their account balances, pay bills, and get account information using voice commands. Another example is that the US bank customers can use Apple's Siri to check their bank account balance or to make a payment through this US bank app. Similarly, Bank of America has developed a chatbot powered by conversational AI to provide customer support and assistance through the Bank of America application. Via the app, you can get the account information, make payments, and more. Wells Fargo has also developed a chatbot powered by Google conversational AI to provide customer support and assistance. With the Wells Fargo app, you can check your account balance, transfer funds, and more.

Future of Voice-based Smart Assistants

The use of AI smart assistants is expected to boom driven by the rapid adoption of voice‑based AI smart assistants, their versatility, and wider realm of tasks they can perform. The rising demand for convenient and personalized customer experiences, there is no stopping its omnipresence in our lives. The adoption of AI smart assistants is projected to be strong in the retail, banking, and healthcare industries, as well as in the public sector. In the future, it is likely that AI smart assistants will become more integrated with other technologies such as the Internet of Things, IoT, virtual and augmented reality, and 5G networks. This will empower AI smart assistants to access a wider range of data and perform more complex tasks. For example, an AI smart assistant might be used to control a smart home system that is connected to a range of IoT devices such as smart thermostat, security cameras, and smart locks more effectively. An AI smart assistant might also be used to provide augmented reality experiences for customers such as virtual try‑on for clothes or makeup or virtual tools for real estate properties with a much better user experience. With the rollout of 5G networks, it is expected that AI smart assistants will be able to access faster and more reliable data connections, enabling them to perform tasks more quickly and accurately.

Course Summary

Let's wrap up what we learned in this module. We discussed how AI smart assistants work using technologies such as automatic speech recognition, ASR, natural language processing, NLP, deep learning, and machine learning to enable them to understand and respond to voice commands and queries. We also discussed AI smart assistants' business capabilities and their use cases in certain banking systems. Importantly, the future of AI smart assistants is expected to grow continually with more adoption, increased integration with other technologies, improve natural language processing, increased personalization and customization, and the incorporation of new technologies such as Internet of Things, IoT, and 5G networks. All right, that concludes our course. I want to thank you for your time and attention and completing this course. On behalf of all of us at Pluralsight, we want to thank you for being with us. Thank you very much for watching, and we'll see you next time.