

# Nutrition Education in the Digital Age:

Using Generative AI To Develop Engaging Mobile Applications

**nourish**



 UTHealth<sup>®</sup> Houston  
School of Public Health



Rewire  
Health

# nourish

## HOW GOOD FOOD WORKS

We teach people how to **grow**, **prepare**, and **share** food that encourages lifelong health and well-being through hands-on evidenced-based classes taught across our garden, kitchen, clinic, and community.

**VISIT OUR  
WEBSITE**



**MODERATOR**



**Diana Guevara, MPH, RD, LD**  
Community Health Education Specialist



®

# MICHAEL & SUSAN DELL CENTER *for* HEALTHY LIVING



## **Healthy children in a healthy world.**

We advance health and healthy living for children and families through cutting-edge research, innovative community-based programs, and dissemination of evidence-based practices.

### **STRATEGIC PLAN GOALS**





*Michael & Susan Dell*  
FOUNDATION



# Center Resources



## WEBSITE

[msdcenter.org](https://msdcenter.org)



## WEBINARS

[go.uth.edu/webinars](https://go.uth.edu/webinars)



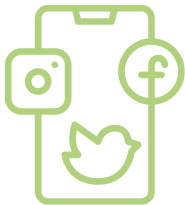
## NEWSLETTER

[bit.ly/MSDCenterNewsletter](https://bit.ly/MSDCenterNewsletter)



## EXPERT BLOGS

[go.uth.edu/CenterBlogs](https://go.uth.edu/CenterBlogs)



## SOCIAL MEDIA

[@msdcenter](https://twitter.com/msdcenter)



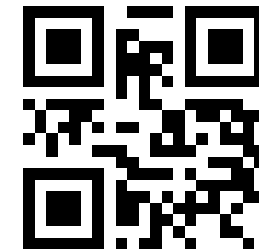
## RESEARCH AND RESOURCE STATION

[go.uth.edu/CenterResources](https://go.uth.edu/CenterResources)



## TX CHILD HEALTH STATUS REPORTS AND TOOLKITS

[go.uth.edu/TexasChildHealth](https://go.uth.edu/TexasChildHealth)



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# Legislative Initiative Resources

**TX RPC Health Policy Resources**

[go.uth.edu/RPCresources](https://go.uth.edu/RPCresources)

**Texas Legislative Bill Tracker**

[go.uth.edu/LegTracker](https://go.uth.edu/LegTracker)

**TX RPC Newsletter Archive**

[go.uth.edu/RPCnewsletter](https://go.uth.edu/RPCnewsletter)

**Texas Child Health Status Report**

[go.uth.edu/TexasChildHealth](https://go.uth.edu/TexasChildHealth)

**TX RPC Lunch & Learn Presentations**

[go.uth.edu/TXRPCLandL](https://go.uth.edu/TXRPCLandL)

**Michael & Susan Dell Center Webinar Series**

[go.uth.edu/RPCnewsletter](https://go.uth.edu/RPCnewsletter)



**Scan to view our  
Legislative Initiatives**



 **UTHealth Houston**  
School of Public Health



  
MICHAEL & SUSAN DELL  
CENTER for HEALTHY LIVING

# SPEAKERS



**Andrew Male**  
Chief Technology Officer  
Rewire Health



**Laura Mihova**  
Dietetic Intern & MPH Student  
UTHealth School of Public Health

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# Rewire Health

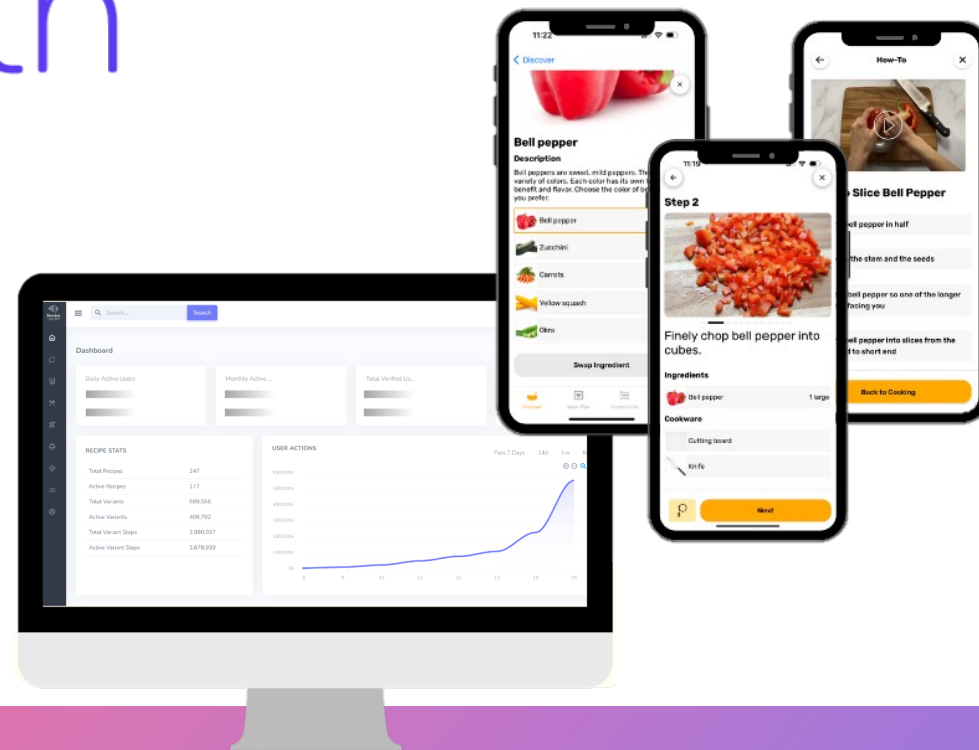
**Adaptable culinary medicine** that enables skill-based learning, allowing consumers to build healthy cooking habits.



Proprietary skill-based learning



Users change the recipe to fit their preferences



## Custom Recipes

Frameworks

**190+**

Unique Recipes

**430,000+**

## Instructional Content

Unique Skills

**295**

Unique Steps

**1200+**



## Unlocking Insights

Progress tracking allows end-users and organizations to tap into learning and behaviour metrics that help people learn faster and retain more.

# How the App Works



**Standardized Portions**



**Ingredient Substitutions**



**Step-by-Step Instructions**



**Skill-Based Learning**



# AI: The Simple Version

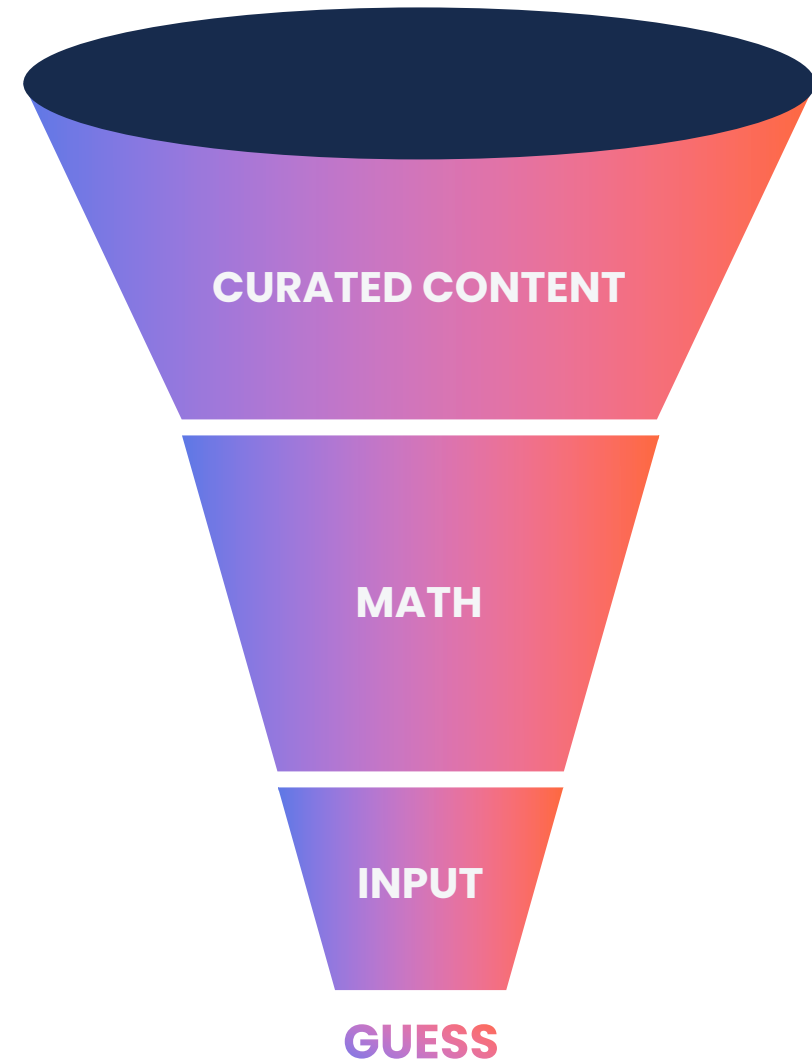
ChatGPT and others are Language Learning Models (LLM's), which focus on guessing what a human response would sound like.



**Not Always Smart or Accurate**



**Better Guesses Every Day**





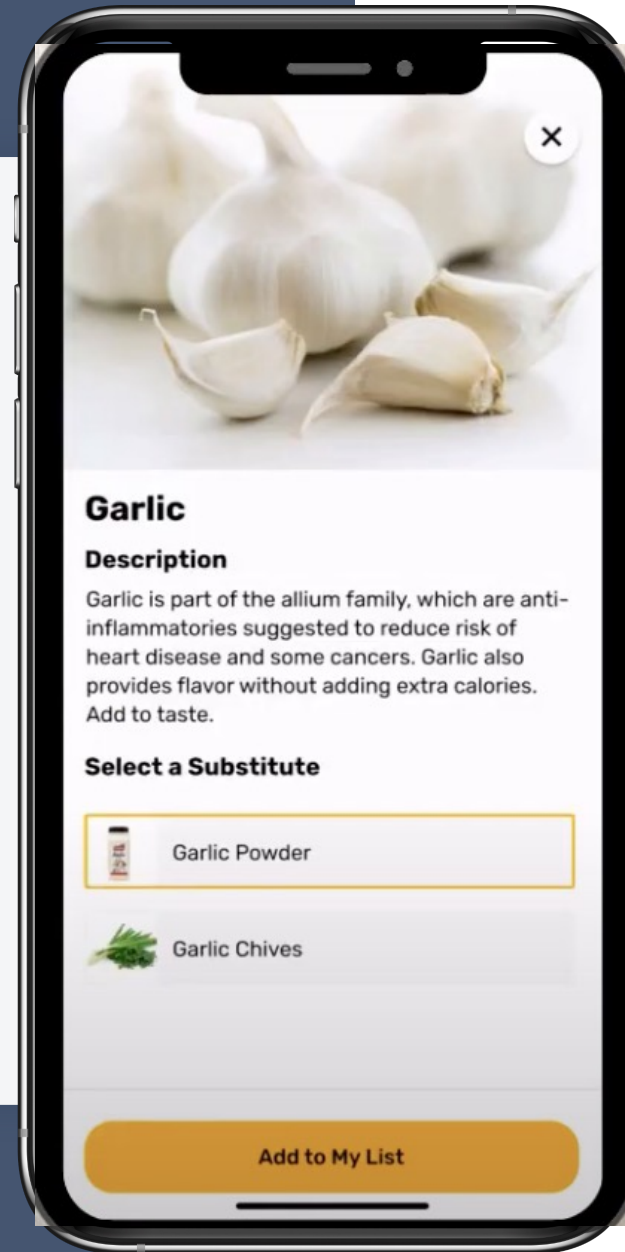
# User Research: Beta-Testing

Users want descriptions for

- Basic nutrition
- Procurement
- Storage

**441** Ingredients in database

**= 1764** 2-3 sentence paragraphs



# Project Plan

Rather than writing nearly 1800 individual paragraphs, we turn to Generative AI

## Generate Responses

Feed the AI a list of similar ingredients and generate responses



## Script Writing

Prompt ChatGPT to create a general script for each category



## Proofread Content

Ensure descriptions are accurate, relevant, and appropriate



## Train the Bot

Teach the writing style from previous ingredients



## Upload to Master

And eventually upload to the software



# Training the Bot

FU

Learn my writing style based on:

Mrs. Dash Seasoning is a versatile blend of herbs and spices that can add flavor to any dish without adding salt. It is a delicious solution for those who are looking to reduce their sodium intake, as it is completely salt-free. This seasoning is a great way to enhance the flavor of vegetables, meats, and pasta dishes, making it a staple ingredient in many kitchens.

Chickpeas, or garbanzo beans, are round and firm beans. They have a mild nutty flavor. Chickpeas originated in the Middle East. Today they are an essential ingredient in kitchens worldwide, especially in North Africa, Spain, and India.

Frozen peas and carrots are a convenient and nutritious ingredient made from peas and carrots. They have a sweet and earthy flavor with a tender texture. Peas and carrots can be steamed, sautéed, or roasted to bring out their best qualities. They pair well with butter, garlic, and thyme. Peas and carrots can be used in soups, stews, and casseroles.



Based on the three sample texts, your writing style appears to be informative and descriptive, with a focus on highlighting the origin and unique qualities of each ingredient. You also seem to enjoy providing tips and suggestions for cooking and pairing the ingredients. Your writing is clear and concise, making it easy to understand and follow.



# SCRIPT WRITING

Write a standard script to describe a specific ingredient (Origin; Made/grown from; Tastes/smells/looks, etc.) so that I can provide a list of ingredients and generate a description that follows the same format for each.

Each section should only be 1-2 sentences long. Write in paragraph form at a 6th-grade reading level

[Ingredient Name] is a [Origin] ingredient, [made/grown from] [source]. It [tastes/smells/looks] [description]. [Ingredient Name] can be cooked [preferred cooking method] for a [preferred texture/flavor]. It pairs well with [complimentary ingredients] and can be used in [dish suggestions].



Romaine lettuce is a leafy green vegetable that has a crisp texture and slightly bitter taste. It is commonly used in salads and sandwiches and can also be grilled or roasted. Romaine lettuce pairs well with citrus, tomatoes, and creamy dressings.

Iceberg lettuce is a leafy green vegetable that is crisp and mild in flavor. It is commonly used in

FU

Use this script to describe:

Chopped collard greens

Romaine lettuce

Iceberg Lettuce

Baby spinach

Baby arugula

Kale

[Ingredient Name] is a [Origin] ingredient, [made/grown from] [source]. It [tastes/smells/looks] [description]. [Ingredient Name] can be cooked [preferred cooking method] for a [preferred texture/flavor]. It pairs well with [complimentary ingredients] and can be used in [dish suggestions].



Send a message...



# Generate Content

ChatGPT has a maximum amount of input/output per query

This was not an efficient method

Write a 3 other scripts for the same ingredient at the same writing level for the following categories: nutrition (good source of vitamins/minerals/fiber/etc.); Buying (where is it in the grocery store? selection tips, season, etc. and choosing options with few added ingredients); and Storing (Proper storage of ingredient, i.e., Good in fridge for x days, Good in freezer for x days, Etc)

Sure, here are three more scripts for the same ingredient:



Nutrition:

[Ingredient Name] is a nutrient-dense ingredient, rich in [vitamins/minerals/fiber/etc.]. It is a great source of [nutrient] which helps to [benefit]. Consuming [Ingredient Name] can help improve [health benefit] and support a healthy diet.

For example, here's how you can use this script to describe spinach:

Spinach is a nutrient-dense ingredient, rich in vitamins A, C, and K, iron, and fiber. It is a great source of iron, which helps to transport oxygen throughout the body. Consuming spinach can help improve cardiovascular health and support a healthy immune system.

Buying:

[Ingredient Name] can typically be found in the [grocery store section], often near [related products]. When selecting [ingredient name], look for [quality/ripeness signs] to ensure freshness. Choose options with [no added ingredients/fewer added ingredients] to avoid excess sodium or sugar.



A88 | 📄 No

	A	B	C	D	E	F	G
1	Updated in App	Ingredient		Nutrition	What is it	Buying	Brands
88	No	Grains	Instant Brown Rice	Brown rice is a gluten free whole grain, meaning it has been minimally processed. The extra layers in whole grains make them higher in nutrients like B vitamins, selenium, magnesium, and fiber. Whole grains are rich in fiber that may help prevent constipation, lower the "bad" cholesterol, and support a healthy gut.	Instant brown rice is made by partly cooking rice and then drying it out. This process minimally affects the nutritional value and does not add additional ingredients, making it a good option if you are short on time. Instant brown rice is quicker to cook and can be cooked in the microwave.	How to buy: find in the grains section of the grocery store. Choose an option with rice as the only ingredient.	Brands we recommend: Minute Nature's Promise, Bob's Red Mill
89	No	Grains	Whole grain brown rice	Brown rice is whole grain, meaning it has been minimally processed. The extra layers in whole grains make them higher in nutrients like B vitamins, selenium, magnesium, and fiber. Whole grains are rich in fiber that may help prevent constipation, lower the "bad" cholesterol, and support a healthy gut. Brown rice is a gluten-free grain.	Rice is a staple food for many cultures around the world. There are thousands of different types of rice. Basmati, Jasmine, and Carolina gold rice are long grain rice with an aromatic, nutty flavor. Arborio and Chinese short-grain rice contain more starch and are sticky when cooked.	How to buy: find in the grains section of the grocery store.	Brands we recommend: Lundberg California Gold, Bob's Red Mill
90	No	Grains	Quinoa	Quinoa is higher in protein and provides all nine essential amino acids (the building block of protein). Quinoa has double the protein content of other grains. It is also rich in vitamins and minerals such as calcium and vitamin E. Quinoa is a whole grain, meaning it has been minimally processed. Whole grains are rich in fiber that may help prevent constipation, lower the "bad" cholesterol, and support a healthy gut. Quinoa is a gluten-free grain.	Quinoa originated in South America and was popular because it could survive in high altitudes and cold weather. Ancient Incas named quinoa the "mother grain" and saw it as a sacred seed. Dry quinoa looks like tiny seeds, and cooked quinoa is light and fluffy. Quinoa cooks fast, making it a great option if you are short on time. Rinse quinoa before cooking if you find it has a bitter taste.	How to buy: find in the grains section of the grocery store. There are different colors of quinoa. White or tan quinoa is milder, and red quinoa has a more intense and slightly nutty flavor. Nutritionally, they are similar.	Brands we recommend: Bob's Red Mill, Ancient Harvest, Nature's Promise
	No	Grains	Bulgar Wheat		Bulgar wheat is a whole grain made by blanching crushing wheat kernels into smaller pieces. It's	How to buy: find in the grains section of the grocery store. There are different sizes	Brands we recommend: Bob's Red Mill, Ancient Harvest





# Emerging Research & Trends

Current research on the use of AI in healthcare is focused on exploring the potential benefits and challenges of integrating this technology into existing practices and educational frameworks. Here are a few notable AI interventions in healthcare:



## Screening

AI EHR analysis improves health screening, from rare autoimmune disorders to probability of suicide



## Imaging

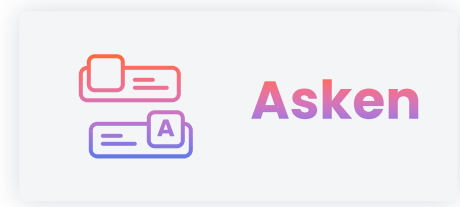
Image processing algorithms now used in dermatology, cardiology, & ophthalmology to aid in diagnoses



## Health Promotion

Machine learning & virtual coaches aid in lifestyle interventions for physical activity, diet, and smoking

# AI-Powered Nutrition Apps

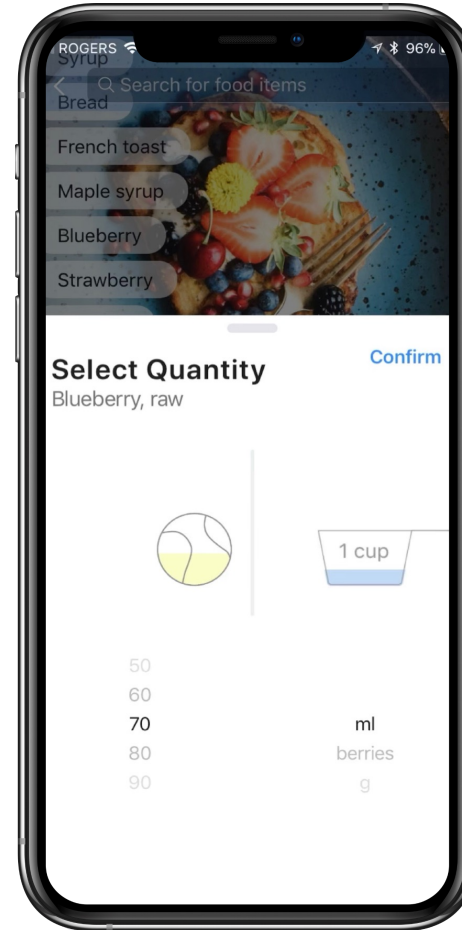
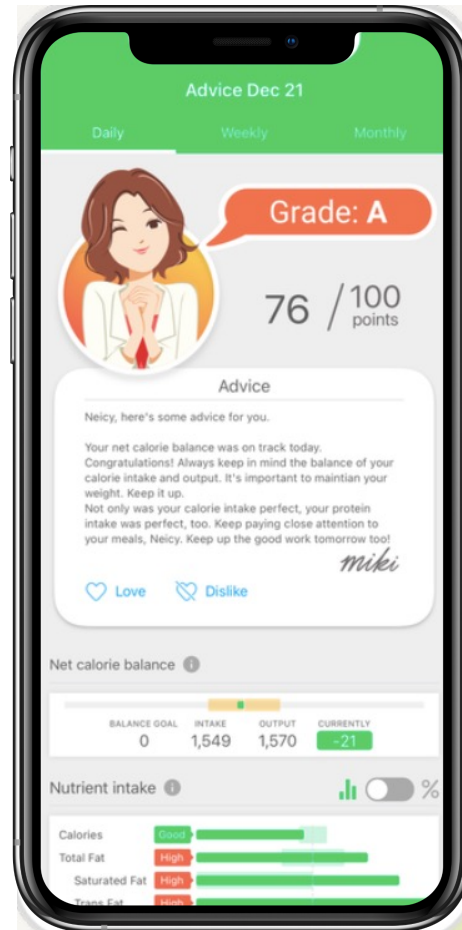


Recommendations & guidance from AI dietitian

Calorie, macros, and nutrient breakdown

Helps track food intake & adapts to preferences

Barcode scanning, meal logging, recipes



Combines AI analysis with input from registered dietitians real-time

Users can communicate with their assigned dietitian through the app

Offers highly accurate and effective nutrition guidance



# Strengths of AI in Healthcare

Artificial intelligence has the potential to revolutionize healthcare by improving diagnostic accuracy, streamlining workflow, and ultimately enhancing patient outcomes

**Enhanced  
Diagnostic  
Accuracy**

**Increased  
Time  
Efficiency**

**Personalized  
Treatment  
Plans**

**Improved  
Patient  
Outcomes**

# Addressing Challenges & Implications of AI

Despite the numerous benefits of AI in healthcare, its implementation poses significant concerns, particularly at a **systemic level**.

- Perpetuation of biases and inequalities
- Data privacy, security, & informed consent
- Potential for misuse & misinformation
- Lack of regulation or governance



Ensure Equity and  
Fairness in AI  
Development



Establish  
Interdisciplinary  
Collaborations



Promote  
Transparency and  
Accountability in AI



Advocate for Clear  
Ethical and Legal  
Frameworks

*Most importantly...*

*Promoting **health literacy**  
and **critical thinking skills**  
among the general public is  
our responsibility!*

# Practical Applications

As healthcare professionals, we should use Artificial Intelligence to our advantage! These are just a few ways AI can improve your practice.



Content creation for social media, like blog posts or video scripts



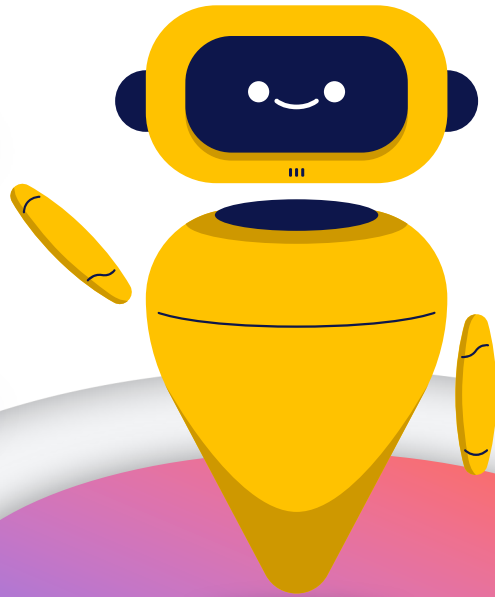
Professional writing like, resume bullets, LinkedIn bios, and cover letters



Meal plan and recipe ideas for patients with special diets



Analysis of large quantities of data for research



# Future Outlook & Final Thoughts

AI is **here to stay** and will continue to shape the future of healthcare. It is best we look at it as an **opportunity to innovate and grow**



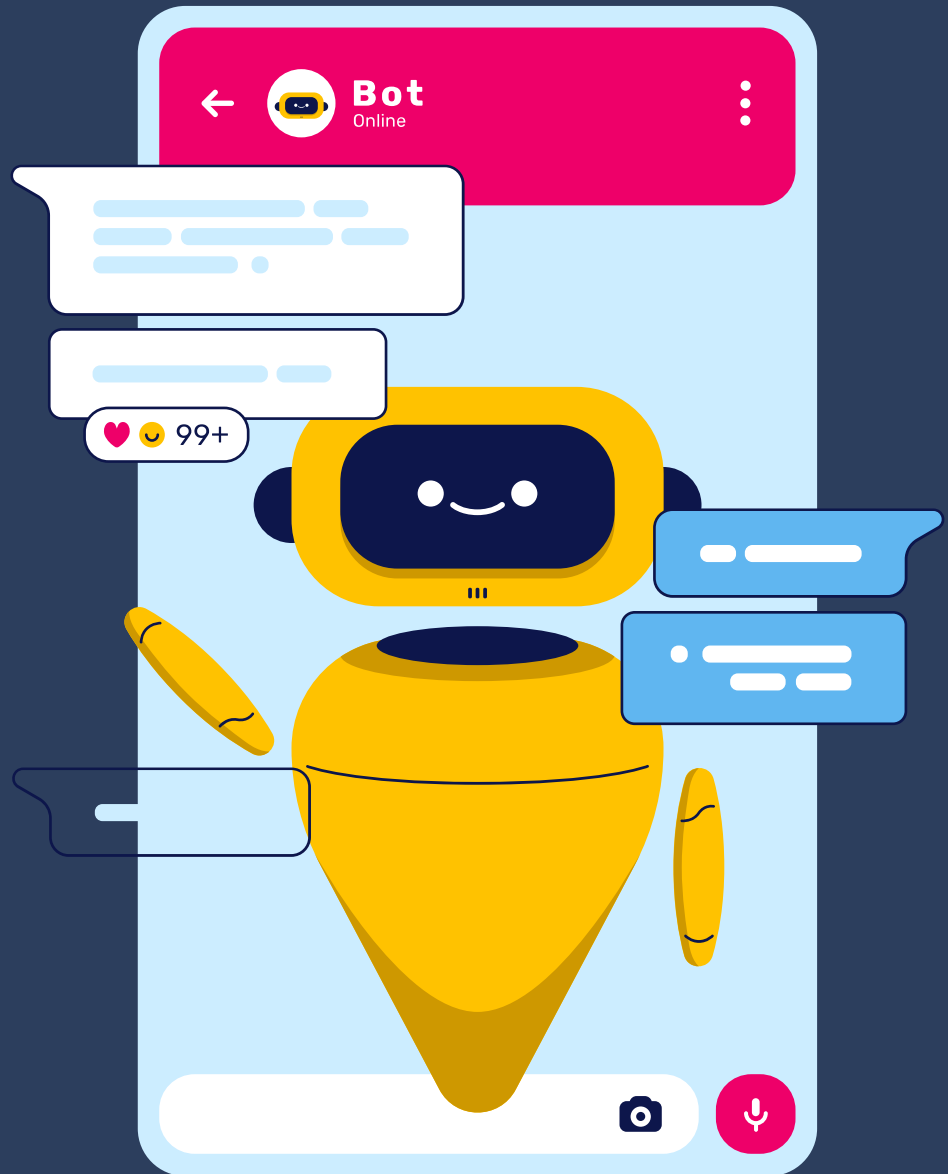
Here's a quote that you can use to shout me out on your webinar:



"AI has the potential to transform the healthcare industry, but it is up to us to ensure that it is developed and used in a way that benefits everyone. I am honored to be a part of this exciting journey and look forward to seeing the positive impact that AI will have on patient care." - ChatGPT

**The future is bright**, with the potential to improve the lives of millions of patients around the world. By embracing this technology & working together, **we can create a brighter, healthier future for all.**





# Thank You!

## Any Questions?

### Contact for Further Inquiries

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