



BREWING WITH AI

SIMPLE HACKS TO ADVANCED SYSTEMS

Here's a recipe for a brown ale with added ginger:

Ingredients:

3.5 kg of pale malt

The Dark Ages

...2023 ad

Why did you choose that mash temperature?



notes.

ates.

The recommended mash temperature of 160-170°F (71-77°C) is a common temperature range for mashing pale malt, which makes up the majority of the grain bill in this recipe. This temperature range is ideal for converting the starches in the malt into sugars that will be fermented by the yeast, producing alcohol and carbon dioxide.

The specific temperature chosen within this range will have a significant impact on the final beer characteristics. A mash temperature at the lower end of the range (160°F/71°C) will result in a drier, more fermentable wort, while a temperature at the higher end (170°F/77°C) will produce a sweeter, less fermentable wort.

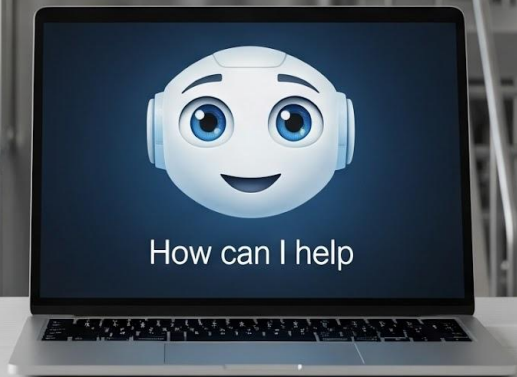
AI Grows Up

Awkward Phase: Still Making
Stuff Up With Confidence

- March 2023 - API release allows other developers to create AI apps using GPT.
 - Still very limited ways to give it the correct brewing knowledge
- March 2023 - Release GPT 4. Greater accuracy, larger memory. Still limited.
- April 2023 - ChatGPT can browse the internet for answers
 - Still struggles to deal with large amounts of data without making up details.
- November 2023 - Custom GPTs, allows more subject specific focus.
- May 2024 - Image recognition, multimodal
- September 2024 - o1 Thinking model
 - Thinking models are the first GPTs to start to break down a question and the answer into discrete parts.

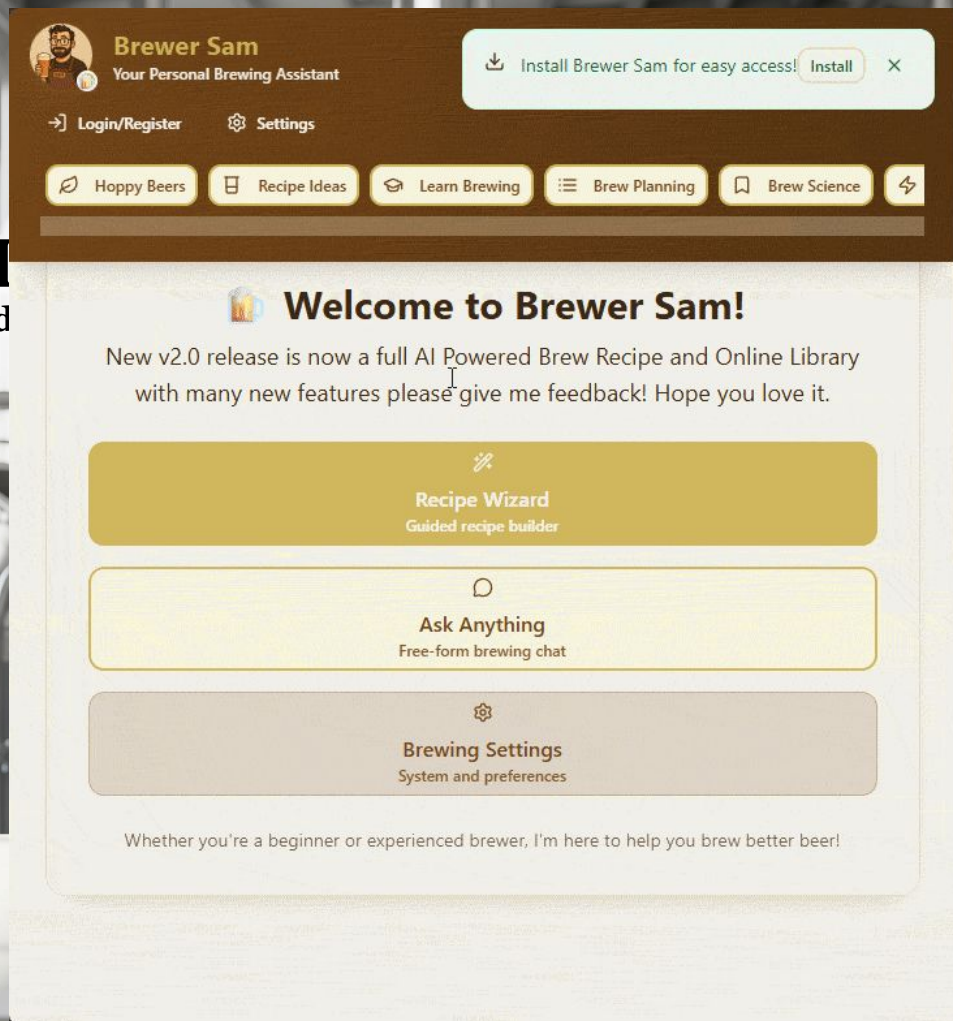
Focused AI Helpers

Easy to use, focused enough to help



Focused AI H

Easy to use, focused



Pushing the Limits

Stretching the boundaries of the current state of the art.

- **Multimodal**

Multimodal models can read your label artwork directly, check grammar, spot missing info, and flag compliance issues against local labeling rules. They validate both the text and the visual layout instead of relying only on typed content.



Pushing the Limits

Stretching the boundaries of the current state of the art.

• Audio Overview

Google Audio Overviewss allows you to take on research and generate a “podcast”. Engaging and easy to listen to, this allows learning while on the road, or when sitting at your desk doing something else.

A futuristic brewery scene. Large copper kettles with stone bases are integrated into a lush green environment. Waterfalls flow from the kettles into a series of channels. The roof is a complex structure of solar panels and green leaves. A person is walking in a channel in the foreground.

Brewers just want to brew!

AI should:

- Solve problems quickly
- Automate the mundane
- Help learning of complex subjects
- Discuss recipes and options

Then get out of the way and let the brewing happen.

The Future

AI: Pervasive yet Imperceptible