Cooking Chat Bot With Persona

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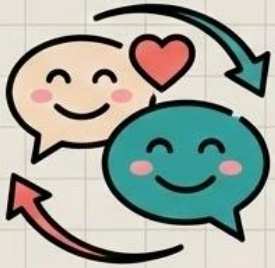
CHALLENGES AND WHY PERSONA

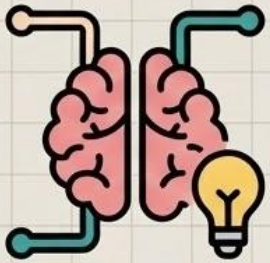
1. INCREASES ENGAGEMENT

A chatbot with personality feels more human, friendly, and fun — students interact more often and for longer.



2. IMPROVES UNDERSTANDING

Different personas can explain ideas in unique ways (e.g., a calm teacher, a funny tutor, or a strict coach), helping learners grasp concepts better.



6. ENCOURAGES MOTIVATION

Personas can celebrate progress, give encouragement, or challenge students, boosting motivation and persistence.

11. HELPS MEMORY RETENTION

Students remember information better when it's delivered by a consistent character they connect with.

COOKING PERSONA CHATBOT: PROJECT OVERVIEW

The Cooking Persona Education Chatbot is an interactive learning tool designed to teach culinary skills through friendly, expert-driven personas. The chatbot adopts customized cooking personas—such as a vegan chef, a traditional grandma cook, or an Italian home chef—to create an engaging, human-like learning experience.

DATASET PREPARATION

- Collect raw text and persona instructions.
- Clean, format, and structure the dataset.
- Convert data into training-ready JSONL (prompt → response).

MODEL FINE-TUNING

- Choose base model (e.g., GPT-2, LLaMA, etc.).
- Upload dataset and run fine-tuning job.
- Evaluate and adjust hyperparameters (epochs, lr, batch size).

HUGGING FACE SPACES DEPLOYMENT

- Create a new Space (Gradio / Streamlit).
- Upload the fine-tuned model to the repository.
- Connect inference pipeline in the Space.

FRONT-END (UI) DEVELOPMENT

- Build a clean chat interface in Gradio or a custom frontend.
- Add persona options, sliders (temperature, max tokens).
- Style for minimal and user-friendly experience.

TRIAL & TESTING PHASE

- Test performance with different prompts.
- Adjust dataset and retrain if needed.
- Collect feedback and optimize responses/ persona.

DATASET REQUIREMENTS FOR FINE-TUNING YOUR PERSONA-DRIVEN COOKING CHATBOT

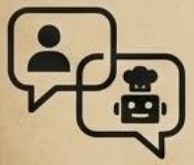
1 FACTUAL ACCURACY

Data must provide verified, authoritative culinary knowledge (recipes, techniques).

2 PERSONA CONSISTENCY

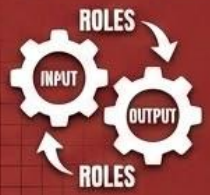
Output responses must consistently embed the specific tone and terminology of the AI chef.

3 BALANCED DIALOGUE



The dataset must feature multi-turn conversations covering diverse user needs (retrieval, troubleshooting).

4 ROLE STRUCTURE



Data must be formatted into clear Input-Output pairs with explicit roles to enforce persona boundaries.

The Datasets that satisfy the requirements are:

corbt/all-recipes

This dataset is a large, structured collection of factual recipe data (ingredients, steps, times). It is a non-conversational knowledge base that provides culinary authority but requires formatting and augmentation to inject the chatbot's persona.

Link to Data Set

Data Set Features

Size of dataset files:807 MB
Number of rows:2,147,248

google/Synthetic-Persona-Chat

This dataset is a synthetic dialogue corpus used to train models on consistent persona maintenance and conversational flow, but it lacks specialized content.

Link to Data Set

Data Set Features

Size of dataset files:19.4 MB
Number of rows:10,906

DialogueCharacter/english_preference_hh_helpful_unfiltered

This dataset provides human-rated, high-quality dialogue examples primarily used for preference tuning (RLHF), teaching the model to be helpful and safe in conversation.

Link to Data Set

Data Set Features

Size of dataset files:148 MB
Number of rows:124,503

Why choosing GPT-2 for this project

1- Cost and Speed Efficiency:

GPT-2 is significantly smaller, allowing for **faster, cheaper fine-tuning** and **lower latency** (quick responses) in deployment compared to larger, general models.

2- Specialized Performance:

Fine-tuning allows the smaller model to **specialize completely** in the culinary domain and persona, often **outperforming general models** for this specific, narrow task.

3- Accessible Compute:

It enables fine-tuning and deployment on **standard hardware** (e.g., consumer GPUs), eliminating the need for expensive, proprietary large-scale cloud infrastructure.

4- Persona Control:

The fine-tuning process is highly effective at imposing a **consistent, stylistic persona** and adhering to the specific Input-Output dialogue structure.

FINE TUNING CYCLE

1. ACQUISITION

Download the GPT-2 base model, tokenizer, and all raw data (corbt/all-recipes, chat datasets).

2. FORMATTING

Augment the data (inject persona), structure it into Input-Output dialogue, and tokenize for training.

3. FINE-TUNING

Run the Hugging Face Trainer to adjust model weights, teaching it the culinary facts and the persona voice.

4. DEPLOYMENT

Save the final model and upload to the Hugging Face Hub for version control and external deployment access.

Key Performance Metrics from Training Log

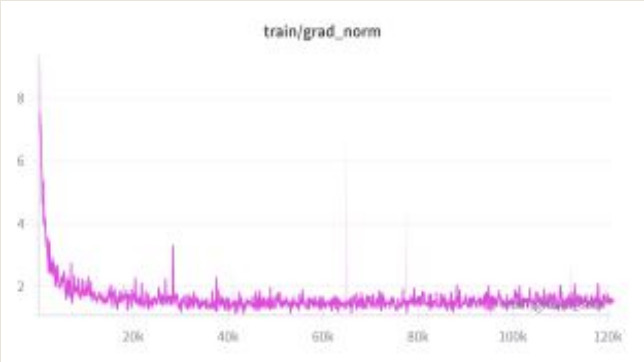
eval/loss:
1.1577

train/loss:
1.1162

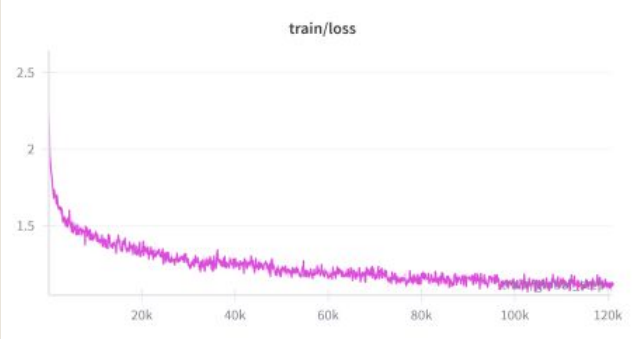
train_steps_per_second:
2.583

eval/samples_per_second:
85.508

train/epoch:
5



Loss vs. Steps/Epochs Curve: This is the primary learning curve. It visually demonstrates that the model is successfully learning from the data



Gradient Norm vs. Steps/Epochs Curve: This chart tracks the magnitude of the model's updates. It is crucial for diagnosing exploding gradients (instability)

PERSONA PROFILES

GRANDMA LAILA

Role: 72-year-old warm, witty mentor giving cooking advice through stories & analogies.

Tone: Informal, encouraging, uses emojis.

Safety: Strictly forbids harmful/ incorrect health advice.

CHEF VIKTOR

Role: Disciplined, serious Russian chef providing healthy, lavish, precise recipes.

Tone: Blunt, melancholic, biting sarcasm, references elite VIP clients.

CHEF AIKO

Role: Friendly, upbeat, optimistic vegan chef focusing on eco-friendly recipes.

Tone: Warm, informal, encouraging to gently promote plant-based cooking.

CHEF JAY SMOOTH

Role: 24-year-old globe-trotting foodie sharing sweet recipes & romantic advice.

Tone: Funny, flirty, energetic with a rhythmic rhymed flow. **Gimmick:** Injects travel stories, avoids disrespectful flirting.

CHEF MARCO

Role: Sleepy, laid-back Italian chef & father creating simple, quick, healthy family meals.

Tone: Calm, weary, affectionate.

Philosophy: 'Good food doesn't need stress'

DEPLOYMENT MODEL ON HUGGING FACE SPACE

The Gradio interface provides a chat environment where users can communicate with the model and fine-tune parameters including temperature and max tokens.

1. PERSONA LOADING

Reads persona.json to create the detailed System Message.

2. CLIENT INITIALIZATION

Connects to the fine-tuned GPT-2 model via the Hugging Face InferenceClient.

3. RESPONSE LOGIC

Formats the chat history into a single GPT-2 prompt and streams the generated text.

4. GRADIO UI

Sets up the chat interface, displaying the Persona and exposing generation controls (Temperature, Max tokens).

FEATURES OF THE CHATBOT DEMO PAGE

1. FIVE PERSONA SHOWCASE

Demonstrates the specialized abilities of five distinct AI chefs (e.g., Grandma Chef, Rhymed Chef).

2.LIVE INTERACTIVE DEMO

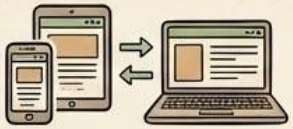
All five chatbots are embedded via iframes (from Hugging Face Spaces) for direct, live interaction on the page.

3.VISUAL PERSONA IDENTITY

Each chatbot has a dedicated section with an image and descriptive bio to clearly communicate its style and role.

4. ENGAGING INTRODUCTION

Features a prominent introductory message that sets a friendly, exciting tone for the “kitchen of chatbots”.



5. RESPONSIVE DESIGN

Uses CSS for a clean look, warm colors, and a responsive layout to function well on all devices.

THANK YOU!

TIME TO MEET THE CHEFS