

Secure GPT Chat Interaction Labeling Process

We used GPT-4o-mini to label all Secure GPT interactions, using the following classification process. First, each interaction was labeled as either healthcare-related or non-healthcare-related. Among those labeled as healthcare-related, we further classified each interaction according to specific healthcare tasks outlined in Bedi et al, allowing for an “other” task label. Finally, all interactions labeled as "other" were reclassified into new healthcare tasks categories. The following prompts were used for this labeling process:

Prompt for identifying healthcare-related Secure GPT interactions:

Is the following question/conversation related to healthcare or medicine? Return 0 if it is healthcare related, return 1 if it is not healthcare related.

Prompt for classifying Secure GPT interactions by healthcare task:

Given the following questions from a healthcare professional to a language model, please classify the questions as one of the following categories. Output a string of the category that you assign to the question, with the category either being a category from Category Options or a new string category. Do not provide an explanation or any other text besides the category name. Here are the category options as well as a definition and an example for each option:

Healthcare Task: Enhancing medical knowledge

Definition: The process of enhancing the skills, knowledge, and capabilities of healthcare professionals to meet the evolving needs of healthcare delivery.

Example: Measuring the performance of GPT on Neurosurgery Written Board examinations

Additional instruction: This includes requesting more information about a healthcare topic for the purpose of learning

Healthcare Task: Making diagnoses

Definition: The process of identifying the nature or cause of a disease or condition through the examination of symptoms, medical history, and diagnostic tests.

Example: Comparing the performance of GPT and Physicians for diagnostic accuracy

Healthcare Task: Educating patients

Definition: Providing patients with information and resources to help them understand their health conditions, treatment options, etc. for more informed decision-making around their care.

Example: Using GPT for Patient Information in periodontology

Healthcare Task: Making treatment recommendations

Definition: The process of providing treatment recommendations for patients to manage or cure their health conditions.

Example: Using GPT for therapy recommendations in mental health

Healthcare Task: Communicating with patients

Definition: The exchange of information from healthcare providers to patients. This could be done via patient messaging platforms, or via Chatbots integrated into the provider workflow.

Example: Using GPT to communicate with palliative care patients

Healthcare Task: Care coordination and planning

Definition: The process of organizing and integrating healthcare services to ensure that patients receive the right care at the right time, involving communication and collaboration.

Example: Measuring the reliability and quality of nursing care planning generated

Healthcare Task: Triageing patients

Definition: Clinical triage is the process of prioritizing patients based on the severity of their condition and the urgency of their need for care.

Example: Measuring the accuracy of patient triage in parasitology examination

Healthcare Task: Carrying out a literature review

Definition: A literature review is a critical summary and evaluation of existing research or literature on a specific topic.

Example: Examining the validity of ChatGPT in identifying relevant Nephrology literature

Healthcare Task: Synthesizing data for research

Definition: Data synthesis refers to the process of combining and analyzing data from multiple sources to generate new insights, draw conclusions, or develop a comprehensive understanding of a topic.

Example: Synthesizing radiologic data for effective clinical decision-making

Healthcare Task: Generating clinical referrals

Definition: A referral is an order that a medical provider places to send their patient to a specialized physician or department for further evaluation, diagnosis, or treatment.

Example: Assistance in optimizing Emergency Department radiology referrals and imaging selection

Healthcare Task: Generating medical reports

Definition: An image-captioning task of producing a professional report according to input image data.

Example: Assessing the feasibility and acceptability of ChatGPT generated radiology report summaries for cancer patients

Healthcare Task: Managing clinical knowledge

Definition: The process of ensuring clinical knowledge bases is correct, consistent, complete, and current.

Example: Using GPT models for phenotype concept recognition

Healthcare Task: Providing asynchronous care

Definition: A proactive way to ensure that everyone assigned to a clinic is up to date on basic preventive care, like cancer screenings or immunizations, and that they receive extra help if they have lab numbers that are high.

Example: Asynchronously answering patient questions pertaining to erectile dysfunction

Healthcare Task: Clinical note-taking

Definition: The process of recording detailed information about a patient's health status, medical history, symptoms, physical examination findings, diagnostic test results, and treatment plans, typically documented in the patient's EMR.

Example: Using GPT models for taking notes during primary care visits

Healthcare Task: Enhancing surgical operations

Definition: The process of supporting healthcare professionals, such as surgical technologists, nurses, and other staff, during surgical procedures.

Example: Using GPT to pinpoint innovations for future advancements in general surgery

Healthcare Task: Conducting medical research

Definition: Medical research generation, including writing papers, refers to the process of conducting original research in medicine or healthcare and documenting the findings in academic papers.

Example: Using GPT models for sentiment analysis of COVID-19 survey data

Additional instruction: Conducting medical research includes requests for assistance with coding for the purpose of data analysis (e.g. using tools such as R, SQL, etc.)

Healthcare Task: Biomedical data mining

Definition: The process of searching and extracting data regarding a patient's health.

Example: Using GPT models to mine and generate biomedical text (Chen et al)³⁷

Healthcare Task: Generating provider billing codes

Definition: Medical billing is the process of submitting and following up on claims with health insurance companies to receive payment for healthcare services provided to patients.

Example: Using GPT models to predict diagnosis-related group (DRG) codes for hospitalized patients

Healthcare Task: Writing prescriptions

Definition: The process by which a healthcare provider, typically a physician or other qualified medical professional, orders medications or treatments for a patient.

Example: Prescription of kidney stone prevention treatment

Healthcare Task: Interprofessional communication

Definition: Exchanges between healthcare professionals and staff across various roles within the system, excluding direct patient involvement

Example: Help me improve writing for or rephrase this email

Healthcare Task: Other

Definition: Any tasks that fit in either none of or multiple categories

Of note, we included ‘interprofessional communication’ as an additional category in the healthcare task classification prompt given its frequent occurrence in a preliminary manual analysis of a subset of interactions on Secure GPT, although this was not among the tasks described in Bedi et al.

Prompt for Classifying “Other”-labeled Secure GPT interactions:

Given the following questions from a healthcare professional to a language model, please classify the questions as one of the following categories. Output a string of the category that you assign to the question, with the category either being a category from Category Options or a new string category. Do not provide an explanation or any other text besides the category name. Here are the category options as well as a definition and an example for each option.

Healthcare Task: Writing assistance for professional communication

Definition: Supporting communication between healthcare professionals across various teams

Example: Help me write or rephrase this email

Healthcare Task: Generating performance evaluations

Definition: The process of reviewing performance of healthcare professionals and trainees

Example: Assessing and conveying strengths and weaknesses of an employee

Healthcare Task: Supporting career development

Definition: The process of helping healthcare professionals with career advancement

Example: Creating a letter of recommendation for a junior faculty member

Healthcare Task: General writing support

Definition: Assistance with writing tasks not specifically related to professional communication

Example: Help me write a newsletter for our department

Healthcare Task: Other

Definition: Any tasks that fit in either none of or multiple categories