# Understanding Vaccine Hesitancy in Alaska: A Sentiment and Misinformation Analysis

This study explores the role of social media and personal narratives in shaping vaccine hesitancy across diverse communities in Alaska. By analyzing sentiment from both social media discussions and in-depth interviews, the research aims to uncover key drivers of vaccine skepticism, misinformation trends, and regional disparities in public perception. The study will leverage advanced natural language processing (NLP) techniques, including sentiment analysis and retrieval-augmented generation (RAG), to extract meaningful insights that can inform public health strategies.

**Research Focus:**

This study should center on the following key areas:

1. **Sentiment Analysis:**  
   a. **Alaska Tweets:** Acquire a dataset of vaccine-related tweets from Kaggle, pre-process the data to filter tweets originating from Alaska, and extract city-level location details. Utilize the *twitter-roberta-base-sentiment* model to perform sentiment analysis.  
   b. **Alaska Interviews:** Conduct sentiment analysis on interview transcripts. Given their length, leverage GPT API to summarize the documents, extract location data (city), and analyze sentiment using *twitter-roberta-base-sentiment*.
2. **Comparative Sentiment Analysis:**  
   Systematically compare sentiment trends between social media discussions (tweets) and interview responses to identify common themes, discrepancies, and regional sentiment variations.
3. **RAG Model for Vaccine Hesitancy Insights:**  
   Implement a Retrieval-Augmented Generation (RAG) model to query both datasets with key questions related to vaccine hesitancy. These questions will be derived from the Stakeholder Questionnaire to gain deeper insights into public perceptions and concerns.