BLIZZARD BUDDY - A WINTER COMPANION AND MOTIVATOR

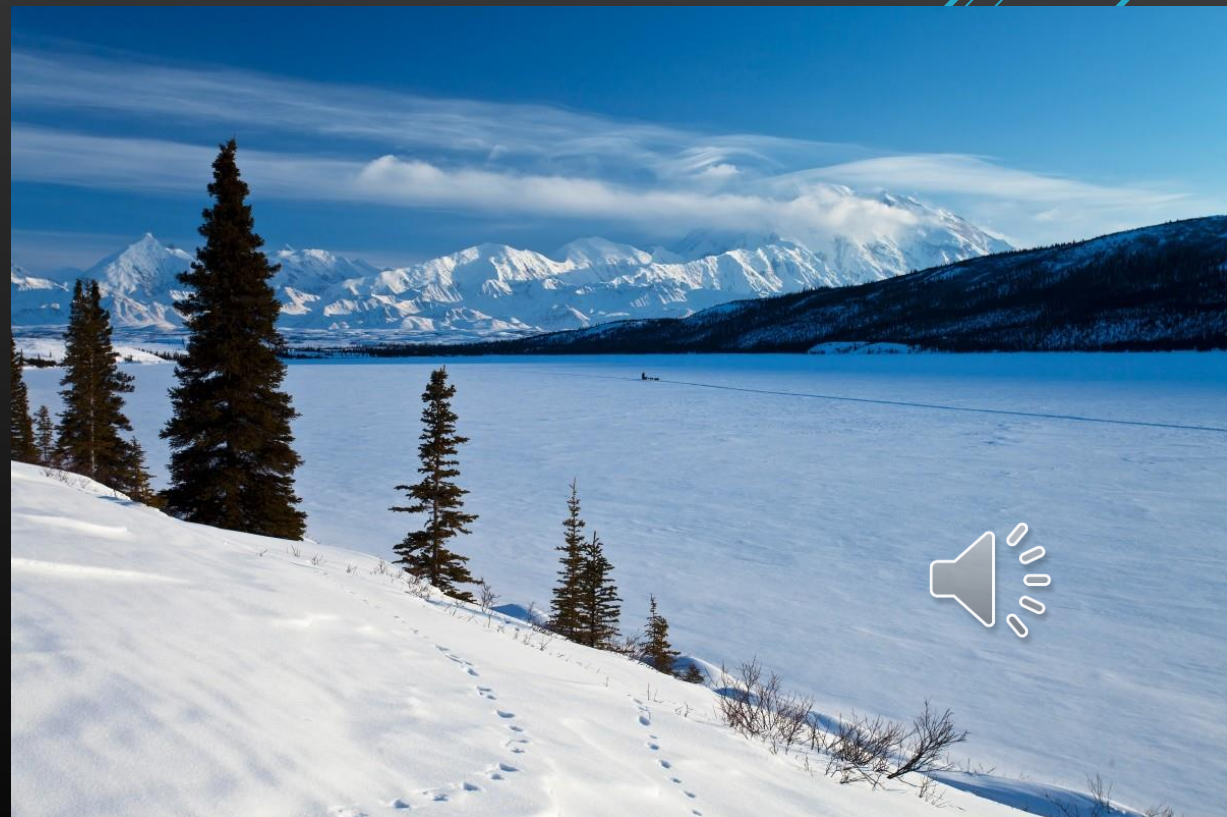
By

Kishan Prajeesh

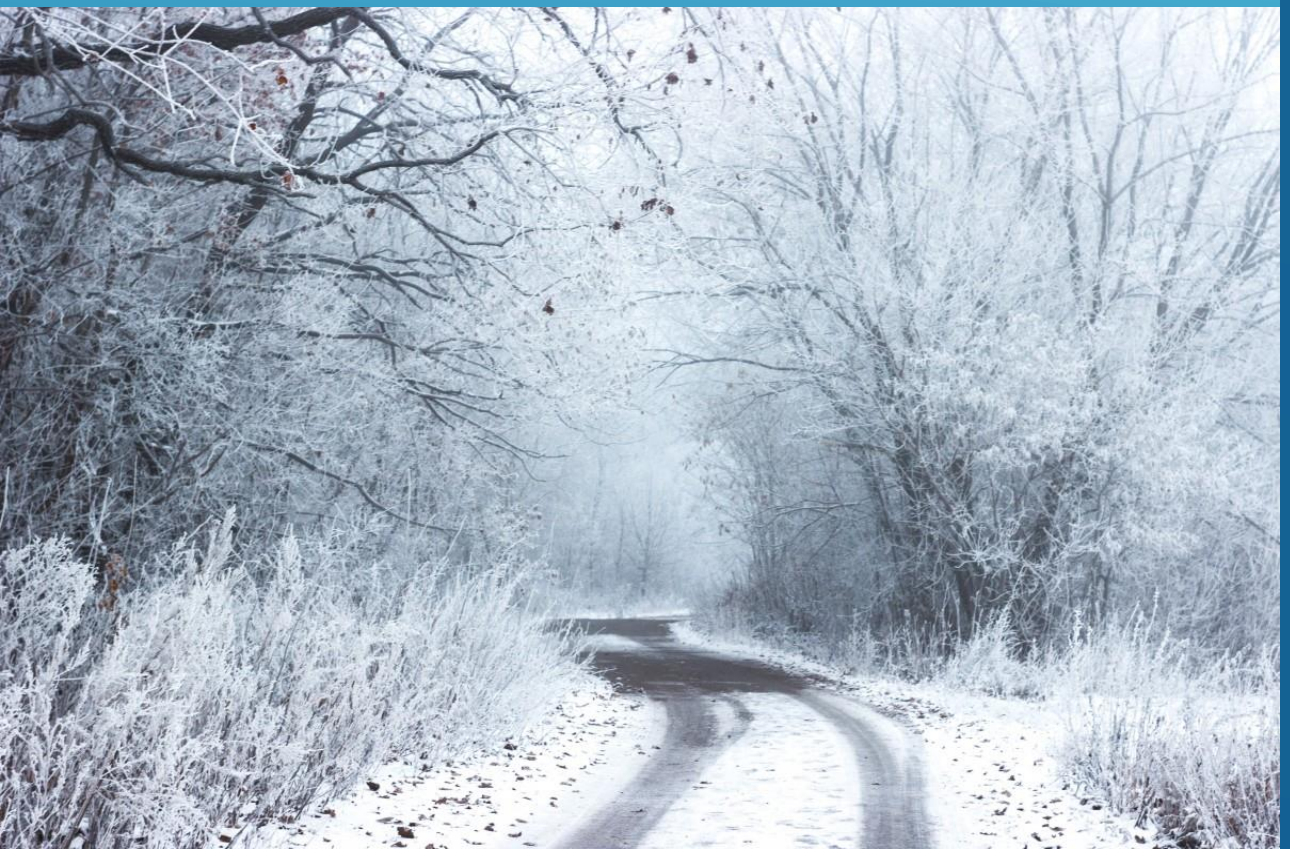
Freshman

Westford Academy

Massachusetts



WINTER WELLNESS MATTERS!



- Seasonal Affective Disorder (SAD) is most prominent during winter
  - People feel lonely during this time
  - Feel unmotivated and depressed
  - Also overindulge in junk foods

SPECIFIC CHALLENGES FOCUSED

Winter months restrict physical activities and social interactions

It becomes challenging to balance

- physical movement and
- Heartful (feel good) eating

Sometimes it is just enough to talk to someone

- finding a companion is not always possible

REFERENCE & DATA

- SAD information from:
  https://en.wikipedia.org/wiki/Seasonal_affective_disorder
- 14 Ways to Ease Seasonal Depression
  https://www.everydayhealth.com/depression/treatment/ways-to-ease-seasonal-depression/
- NLP GPT2 reference from transformers package:
  https://huggingface.co/docs/transformers/model_doc/openai-gpt
- Balancing calorie in and calorie out – reference
  https://www.nhlbi.nih.gov/health/educational/wecan/healthy-weight-basics/balance.htm

Facts:

- "SAD may affect **11 million people** in the U.S. each year, and 25 million more may have a milder form called the winter blues."

  https://www.webmd.com/depression/seasonal-affective-disorder

SOLUTION: BLIZZARD BUDDY

- A winter hub for mind & body wellness
- To improve the physical state
- To stay connected and interact with society

- Our website is designed to solve these challenges:
  - An online challenge – Calorie in, Calorie Out
  - Chatbot - Can engage in interesting conversation, making an engaging activity
  - List of brain-challenging games - Can provide a fun activity, while motivating the user
  - Links to social Media platforms, which can motivate an individual

BLIZZARD BUDDY – DESIGN FEATURES

BLIZZARD BUDDY – TECH SPECS

- **NLP Model**: fine-tuned version of GPT-2 head model
- **AI Package**: Torch
- **Backend**: Python to create chatbot
- **API**: Flask to connect frontend & backed
- **Frontend**: HTML/CSS/Javascript for chat interface/website
- Environment: PyCharm

CALORIE-IN & CALORIE-OUT

- People suffering from SAD tend to eat in an unhealthier manner
- Motivating them to eat healthier is important
- This challenge motivates individuals to burn off the calories from the unhealthy foods
- People who balance calorie consumed and calorie burnt will be put on the leaderboard

CHALLENGES IN BUILDING ONLINE CHALLENGE!

- Leaderboard implementation is only local currently. Need to improve the model using MySQL DB and PHP for storing more user data and arrange in display
- Not able to webscrape from certain websites to directly access the calories consumed or burnt
- Future plan – making the leaderboard globally accessible and update it dynamically

WHY USE A CHATBOT?

Many with SAD feel lonely

They need somebody to talk to

But that is not always available

So an online chatbot is made to act as emotional companion or to vent out

NLP MODEL FOR CHATBOT

- GPT2Headmodel Is fined tuned and parameterized to give relevant responses using top-probability, top-occurrence instances from the data and response length
- Currently all interactions are pushed to a database
- Future work: use history to improve the user experience

CHATBOT CHALLENGES

1

DATA LIMITATIONS: LACK OF SPECIFIC & HELPFUL TRAINING DATA

2

FINE-TUNING COMPLEXITY: DIFFICULTIES TUNING HYPERPARAMETERS FOR OPTIMAL PERFORMANCE.

3

HANDLING AMBIGUITY: DEALING WITH AMBIGUOUS USER QUERIES

4

INTEGRATION B/W HTML & PYTHON – NEEDED SEVERAL FIXES TO AVOID CRASHING

LESSONS LEARNED

- Forming teams to share load and to brainstorm ideas
- Initially would have worked in a group of 3 - unfortunately, other 2 had family emergency, and could not contribute
- Updating skills in python interfaces to front end – would enable making apps rather than web pages

USABILITY & ACCESSIBILITY

- Seamless and user-friendly
- Website easy to view and navigate
- Chatbot easy to use
- Easily accessible online – available only in local server for now
- Is usable for all ages – children, adults, senior citizens

FUTURE EXPANSIONS

- **Future Enhancements**
- **Multilingual Support**: Extend the chatbot to handle multiple languages.
- **Emotion Recognition**: Detect user emotions for more empathetic responses.
- **Integration with APIs**: Connect to external services (e.g., weather, news).
- Continuous improvement and user feedback

THANK YOU!
BE COLORFUL!!
HAVE A BLAST IN WINTER!!!