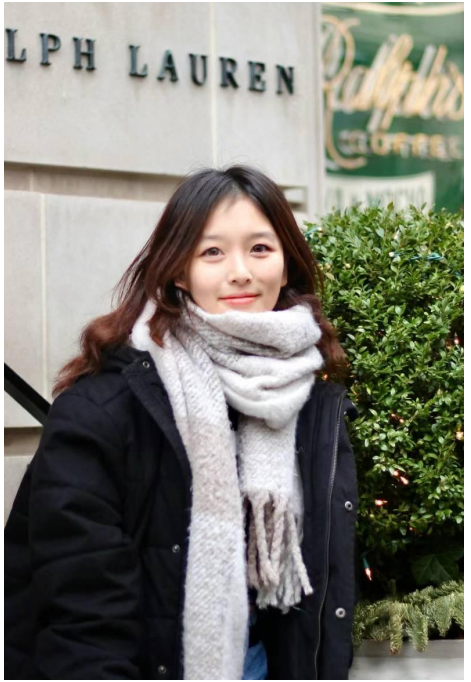
Introduction to Capstone Team - Nexteer (AI Bots)

Carnegie Mellon University MISM Students

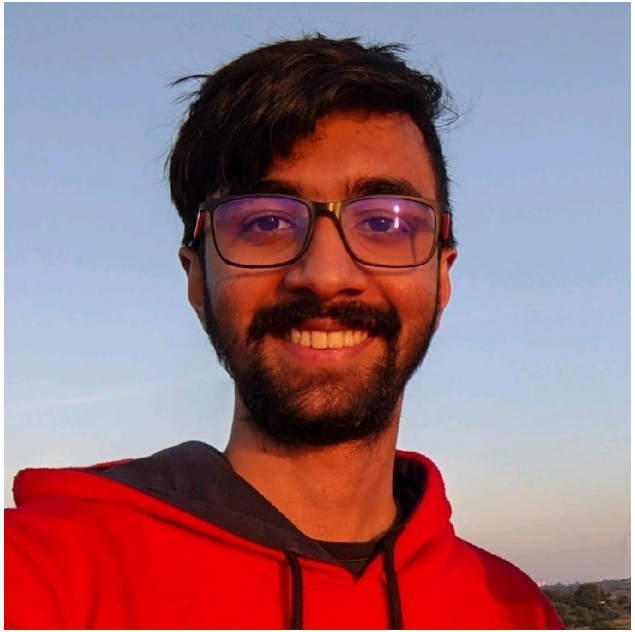
Jacqueline Hsu - PM

- Multiple experiences in data science, database management, UI/UX design
- Implemented machine learning algorithms and NLP techniques to improve University of Washington's course recommendation system



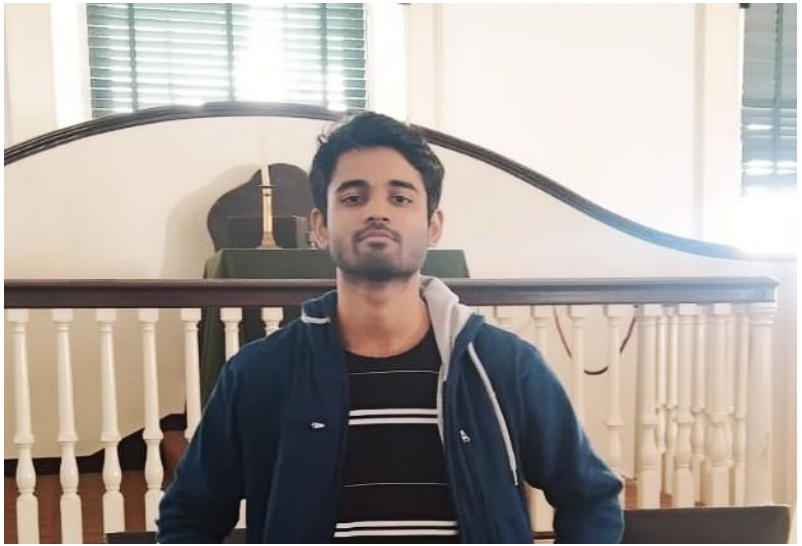
Rugved Somwanshi - FM

- Experience in Software Development
- Specialized in building AI Developer Tools and working with LLMs
- Focus on UI/UX
- TAing this semester or Java and Data Structures



Praneet Yavagal

- Experienced in developing AI models and ML algorithms
- Integrated APIs/Scraping to create responsive systems
- 3 years of SDE experience
- TAing in Data Focussed Python



Louis Leng

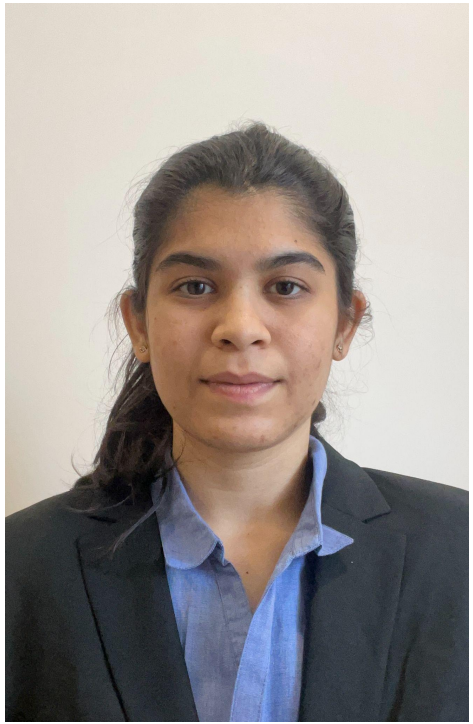
- Led the University of Washington team as the Team Leader in the 2022 Amazon Alexa Prize TaskBot Challenge
- Gained extensive experience in full-stack development through working with multiple start-ups and research projects
- Currently working part-time with an AI-driven chemical company founded by a Carnegie Mellon University professor

Nachiketa Hebbar

- 2 years of work experience as a Senior AI developer at startups
- Worked as a LLM intern in the summer, working on RAG pipelines and Search Engines
- Public Speaker and Machine Learning Educator on YouTube

Khushali Daga

- Experience in building chatbots using techniques like NLP, RAG and LLMs
- Experience with fine-tuning large data using models from HuggingFace and Llama3
- Experience in Deep Learning technologies like LSTM, RNN, CNN, Transformers



Understanding of the Project/Challenge

Project Focus: Develop an AI-powered chatbot facilitator for accurate domain identification and query redirection.

Current Challenge: Existing chatbots struggle with correctly identifying and routing domain-specific inquiries, leading to inefficiencies.

Understanding of the Project/Challenge

Key Objectives:

- Build an AI model for domain identification.
- Implement a redirection mechanism to route queries to the appropriate expert or tool.
- Validate the system to ensure efficiency and effectiveness in real-world scenarios.

Technologies involved: Python, APIs, Langchain, Machine Learning

Proposed Deliverables

1. **Survey:** Survey report/presentation of existing NLP methods to classify user request domain
2. **AI Model/ Code:** Code with implementation of an existing AI model to classify user request domain and a user-facing chatbot that seamlessly interacts with users
3. **Integration:** Integration of AI model with existing chatbot tools/databases OR documentation on how to do the same
4. **Sanity Checks/Testing:** Provide a report/presentation of the limitations of the AI model and cases where the chatbot facilitator could fail
5. **Redirection Logic:** Once the inquiry is categorized, the chatbot intelligently redirects the user to the most relevant resource

Proposed AI-Powered Domain Identification Model

AI Chatbot Interface: A user-facing chatbot that seamlessly interacts with users

Backend AI Model: The core AI model running behind the scenes, categorizing user inquiries based on trained domain-specific knowledge

Dynamic Routing System: Once the inquiry is categorized, the chatbot intelligently redirects the user to the most relevant resource

Proposed Deliverable

Proposed Deliverable: Create a model that uses AI to enhance the precision of user inquiry handling, improving overall user satisfaction.

API-Based Implementation

- Seamless integration with external systems and knowledge databases

System Validation and Testing

- Detailed testing results for accuracy, efficiency, and user satisfaction
- Performance benchmarking against existing solutions

Meeting with Nexteer

Weekly meeting based on the availability of the client

Proposed Agenda:

- Touch base with current progress
- Questions and concerns (by us or the client)
- What to achieve in the following week