



AI Club

at Michigan State University

Newsletter

fall semester 2023

Our mission

Our goal for the AI Club is to become the center for artificial intelligence on campus, promoting the education and empowering all students with AI as well as inspiring invention of all AI related topics. To succeed in these goals, we put forth our efforts into educating our community through workshops, challenging our members in different fields and networking within the community. It is through our efforts that we have succeeded in becoming one of the largest technical clubs on MSU's campus in a matter of a few years.



This newsletter has been dedicated in tracking this progress of all of our members and their accomplishments. We are grateful for all of those that continue to be a part of our community. We hope that this newsletter inspires our audience to continue doing their part in our community. To all of those who have helped us get to where we are today, we are profoundly grateful.

Preface

“Dear members, donors, partners, and community, As another semester draws towards the end, I am excited to share our growth and successes, expansion of vision and partnerships, and the product of entrepreneurship and education born out of the club, with new leadership and members. AI is no longer limited to the computer science community and as such, we are proud to host members from different backgrounds. We launched our first ever research projects as we were looking towards supporting our academia-oriented students and further partnership with researchers. We are excited to be the platform for passionate individuals, whether they grow a start-up out of our projects or get into research through it.

We look forward to introducing some fresh endeavors for fostering further discussions on important topics such as AI ethics and security. I am especially proud to say that our club, besides being the hub of AI at Michigan State, is a step closer to spreading our mission on a bigger scale with collaboration with other universities. The AI Club has recently represented the College of Engineering at the Future Tech Forum in Qatar, hosted by Qatar University and their AI organization. As a club, we will keep building a strong AI community at Michigan State that is connected globally and keep working towards making AI education and opportunities accessible.”

Sania Sinha - President

Igniting Potential with Artificial Intelligence



Workshops

The fundamental staple of our club is our AI Workshops. This is where we teach and empower AI with our members. Learning how to process data, deploy projects, and tackle countless other problems allow our members the full experience of our club and the use of AI in all of its applications.

Projects

To best learn how to use AI in real world applications-- especially in the industry-- we must attempt to integrate AI in full stack applications. That is the goal of the AI Club Projects - to provide a collaborative environment for taking a part in hands-on development to build a product that is bigger than individual capabilities.



Guest Speakers

We are very grateful for the wide, diverse groups in the industry that help us learn more about how AI affects the world.

Workshops

ChatGPT and other large language models (LLMs) are immense for productivity. However, getting the right response from them can be tricky. Here, we focused on prompt engineering — the operation, construction, and interaction with these LLMs.

Workshop 1



Workshop 2



This workshop dived into LangChain, an open-source framework for building applications powered by LLMs. Members were equipped with the knowledge to create product recommendations to research assistants.

After development of AI-related projects through LangChain, members deployed them using Streamlit, an open-source framework that allowed them to share their machine learning and data science web apps in minutes!

Workshop 3



Workshops

Members were exposed to deploying applications directly from GitHub. Furthermore, focus was given to a variety of concepts including API, document retrieval, and conversation memory.

Workshop 4



Workshop 5



The workshop directors touched on the fundamentals of autoencoders, and their applications in music and other content. This was an excellent introduction to diffusion models to be covered in our next workshop.

Qatar Conference

This semester we had the honor of representing Michigan State University's College of Engineering at the Future Tech Forum of 2023 hosted by Qatar University. The forum itself focused on the need for AI in sustainability and cybersecurity, discussing in length on how AI can further innovation as a whole. We had the fantastic opportunity to share all the work we have been doing thus far.

It was during this gathering that we placed second in the AI Ideation Challenge! A very warm thank you for Qatar University for inviting us to take part and MSU's College of Engineering for enabling this amazing opportunity.



Project Leads



Nutrition Recommendation AI Web-app

Zaid Qourah - Sophomore

Python, JS, HTML, CSS

"If worked on long-term, the optimal result would be an app that is widely adopted by users seeking personalized nutrition recommendations. The app would have a robust recommendation engine, integrate with other health platforms, and have a community of engaged users sharing their experiences and results."

"The team is diverse with a wide range of skills, from web development to deep learning. The vision of the project is user-centric, and feedback will be instrumental in shaping the app's future."

Javascript, Python, HTML, CSS

CoutureLab

Olivia Engler - Junior

"CoutureLab's mission is to reinvent and modernize fashion styling by seamlessly integrating advanced AI technology within a user-friendly mobile app."

"...We anticipate challenges but are confident in our ability to overcome them through effective teamwork. We plan to start CoutureLab as a web application and later adapt it into a mobile app. This transition may pose some technical challenges related to server adaptation. However, our long-term vision for CoutureLab is to become an indispensable tool for individuals seeking to enhance their fashion confidence."



Neurocity

Vipul Jain - Graduate

Python

"As technology and understanding of EEG evolve, the project may expand to incorporate more advanced features, such as real-time feedback for mental states or enhanced machine learning models for personalized insights."

"This project is not just about technology-- it's about understanding and unlocking the potential of the human mind. The journey involves collaboration, ethical considerations, and a commitment to improving the intersection of technology and neuroscience. The goal... [is] a positive impact on individuals and society as a whole."



Python, C++, TensorFlow, PyTorch, OpenCV, Nanotechnology tools and software, Hardware-specific programming for the contact lens technology

Live-Translate

Sandhya Kilari - Graduate

"The project may evolve over time due to technological advancements, user feedback, and unforeseen challenges. The integration of more advanced AI and machine learning techniques, improved displays, and enhanced safety features are likely directions for evolution."

"My team will encourage cross-disciplinary collaboration. This means regular meetings where members share insights, discuss challenges, and explore innovative solutions. The collective knowledge and skills of the team will be greater than the sum of its parts."



Project Leads



TODO App

Python, HTML, CSS, VSCode, Firebase, GitHub, NumPy, Scikit-learn, SpaCy, Matplotlib, MySQL, React, Flask

Aashish Harishchandre - Sophomore

"[This] project aims to develop an AI-integrated TODO application that enhances task management by learning user habits, predicting task completion times, and integrating with existing calendars for optimal productivity."

"Challenges... include ensuring the AI accurately learns and adapts to user habits, integrating with various calendar platforms, and maintaining user privacy and data security... it could include features like voice commands, cross-platform syncing, or even predictive task creation based on analysis of the user's lifestyle and preferences."

React.js, Node.js, Firebase, (GPT 4/Llama/Palm2), Python, Langchain, (Google Cloud/AWS/Heroku/Github Pages)

Divyalakshmi Varadha Rajan Prem Sudha - Sophomore

"We want to leverage the potential of GenAI, and LLMs specifically, in the form of a full stack web app to enhance the experience of preparing for tests with ease for students and generating classroom tests efficiently for educators."

"My team has a diverse set of skills ranging from Machine Learning, Agile Project Management methodologies, and Full Stack Development. I believe their passion to create and build projects in the field of Education using AI will be able help us achieve our project goals."

Quizzer.ai



Notelify

Nextjs, supabase, google speech to text api, OpenAi api

Mohammad Alshaikhusain - Sophomore

"Notelify is an AI web application that connects to your mic, listens to your lecture, transcribes the conversation, and takes notes live!"

"My vision for this project is for it to start off with its base functionality but then grow into something bigger. Once finishing the base functionality it would be nice to add the ability for it to integrate with commonly used note-taking apps such as notion. This way when someone is listening to a lecture, and has the AI taking notes for them, they can then choose to put this on a notion page."



Pet Cues

Python, HTML/CSS, Javascript Karoline Yashin - Junior

"Just like humans, we can tell how other animals are feeling based on their body language. We can tell if they are feeling playful, scared, shy, or even stressed. Lots of people's first animals are dogs or cats. While, of course, it is a lot of learning for your pet to be house trained, it's also a learning experience for you. This application will be dedicated to teaching these cues to first time pet owners. They will be able to use their phone to either take a picture or video of their pet to understand how the pet is feeling and prevent any accidents."



Project Leads



Shopping Assistant Anas Shaaban - Sophomore

Python, Django, React, HTML, CSS, JS, Celery

“Our team is going to achieve this by make sub teams for the front end and backend and making weekly tasks that we have to achieve for our final goal.”

“The biggest challenge I believe we will face is the web scraping because that is the most important part and our website heavily relies on accurate web scraping. I think the project will change over time by us using celery to make the website faster and more reliable. “

Projects

This year we have two types of projects: year long and semester long projects. The year long projects are focused on the development of an end product; something that can be used by an end user. These projects are meant to have the potential to turn into thriving startups that could later on go to the burgess institute to pitch their idea and start their venture. The semester long projects are meant to be more of a competitive learning experience. They are focused specifically on machine learning and nothing else. This provides members with an amplitude of experience in dealing with large sets of data that can be used to make powerful machine learning models. In all, with the introduction of these two types of projects, we have are able to foster a place of collaboration where all can find an appropriate project for them.

Other projects not listed: Shopping Assistant, and Autonomous Vehicle.

Most Involved Members

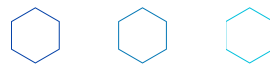
**Lowell Monis
Julian Whittaker
Lina Miedema
Apurva Aggarwal
Aniket Kumar
Tucker Radgens**

**Daniel Helo
Alan Feng
Omar Osman
Madhur Varshney
Delger Byambasukh
Bora Uner
Mohit Mahey**

**Ryan Krupp
Andrew Hart
Anh Trieu
Christian Naida
Andre Sasser
John Matthew Hidalgo**

We wouldn't be here without the support of our members. That's why we like to honor those who have truly put their all into attending our meetings and have gained the most out of this club. Our most involved members are rewarded at the end of the semester, so make sure you all keep attending and sign in when you arrive. That way we know who is really invested this year in AI!

Sponsors



All of this would not be possible without the generous donation from our sponsors. Every group listed here has expressed their enthusiasm toward being apart of this community, and we are beyond grateful for their support. They play a crucial role in supporting what we do here in AI Club, and we can't wait to work with them more in the future.



MICHIGAN STATE UNIVERSITY
RESEARCH FOUNDATION



Guest Speakers



Auto-Owners
INSURANCE

LIFE • HOME • CAR • BUSINESS

Data Science in Industry: AI for Aerial Surveys

Learn what it's like to be on a data science team in industry. What challenges do we face in development? How do we take advantage of modern innovations in modeling and generative AI? Matt Mondragon and Allison Gilles, Predictive Modelers from Auto-Owners Insurance, share their insights and experience during this project-based talk.

Meet the Michigan State University Labs

We are always looking to take AI to a variety of fields. Even on campus, AI is going to push the limits.

In these research labs, each of them contribute AI development in their research. It is through them we can learn where AI is going to go in future fields. We also had a chance to market our skills to join in on these projects.

F**A****E**

Food, AI, and Engineering Lab

Heterogeneous Learning and Reasoning Lab

H**L****R**

C**H****M**
O**M****E****R****A****D**

College of Human Medicine Lab

Signals, Learning, and Imaging Group

S**L****I****M**

G**O****E****S**

Global Observatory for Ecosystem Services Lab



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