# Event Report

# BS $\pi^2$ Seminar x ML Series (LogicLooM)

ML series↗️ Organizers

**Compiled on 30th October, 2025**

*"Without data, you're just another person without an opinion"*

*~ W. Edwards Deming*

# WORKSHOP AND TALK SERIES ON AI APPLICATIONS FOR BEGINNERS AND INTERMEDIATE LEVEL LEARNERS

**ML Series** – A student-led initiative centered around AI-ML, started by the LogicLooM organizing team. Our aim is to enrich the academic and technical journey of students, fostering a thriving virtual environment full of engagement, creativity, innovation and learning. For more details visit the LogicLooM archives at mlig-iitmbs.github.io.

**$\pi^2$ SEMINAR** – Instructor led initiative designed to foster knowledge-sharing and enhance presentation skills. Each session explores fascinating Mathematical, Data Science, ML, AI, and Programming topics, empowering students of the IITM BS DS community to learn, present, and grow together.

## Events Offered

| Title of Talk/Workshop* | Domain |
|---|---|
| Preprocessing Is All You Need; How to Make Your ML Model Understand Different Modalities – *Indranil Bhattacharya* | NLP |
| The Art of Prompting: How to effectively talk to LLMs? – *Somsubhra De* | NLP, Prompt engineering |
| Dirichlet Distributions – From Geometry to Bayesian Inference – *Tanishka Wagh* | Statistics, Probabilistic ML |
| A Theoretical Approach to Deep Learning – *Swarnava Chattaraj* | DL Theory |
| AI-Driven Cancer Analysis: Exploring Genomic and Histopathological Dimensions – *Saheli Majumdar* | Computational Bio, AI4Healthcare |
| Guide to Langgraph – *Aryan Bagale* | Agentic AI |

*Details are mentioned in the appendix.

# Important Event Stats

## ▸ Unique Registration Counts

| | |
|---|---|
| **Total Student Registrations** | **823** |
| **Total Event Registrations** | **1,596** |
| **OVERALL PARTICIPATION/RETENTION RATE** | **50.57 %** |

## ▸ Timeline

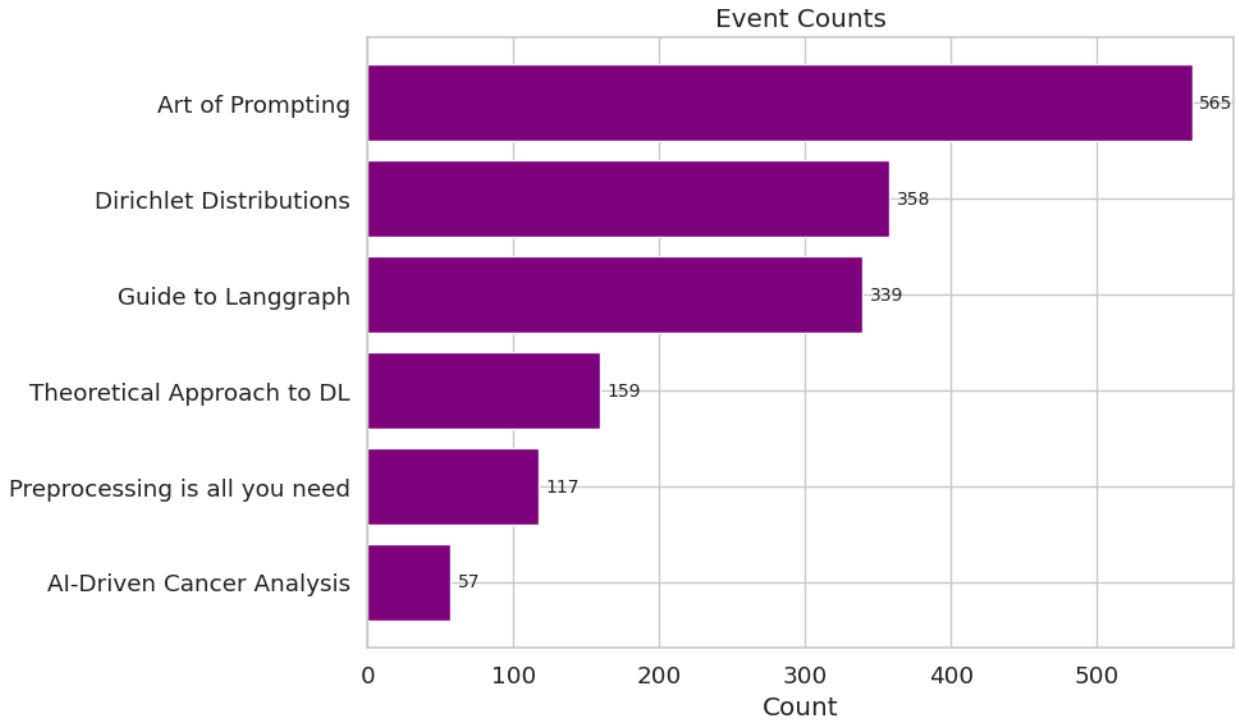
| | |
|---|---|
| **Registration Timeline** | **4 days (15th - 18th OCT 2025)** |
| **Event Timeline** | **13 days (17th OCT - 29th OCT 2025)** |

## ▸ Preference** Across events

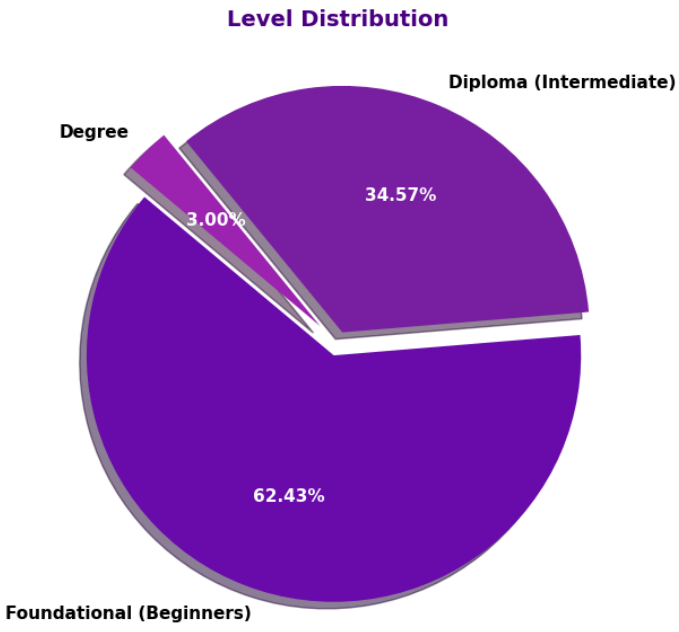
***Note: Not all events were open to all. Each event had a specific target audience level.*

| | |
|---|---|
| **Total Students who registered in at least ONE event** | **700** |
| **Total Students who registered in at least THREE events** | **317** |
| **Total Students who registered In at least FIVE events** | **15** |

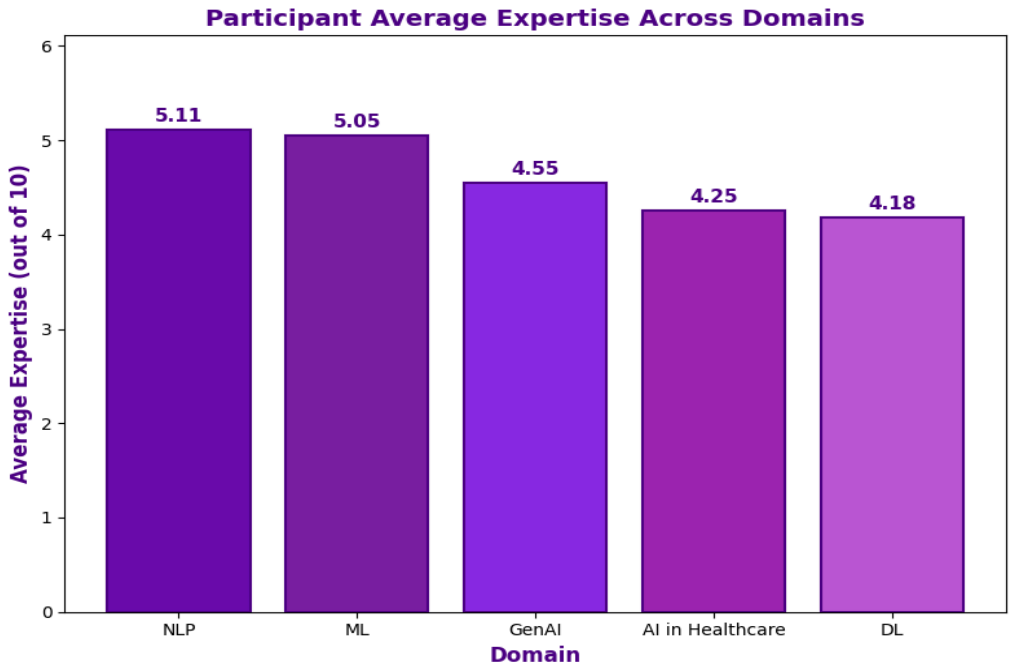
## ▸ Event wise Registration counts




▸ Level wise Registration Shares (%)

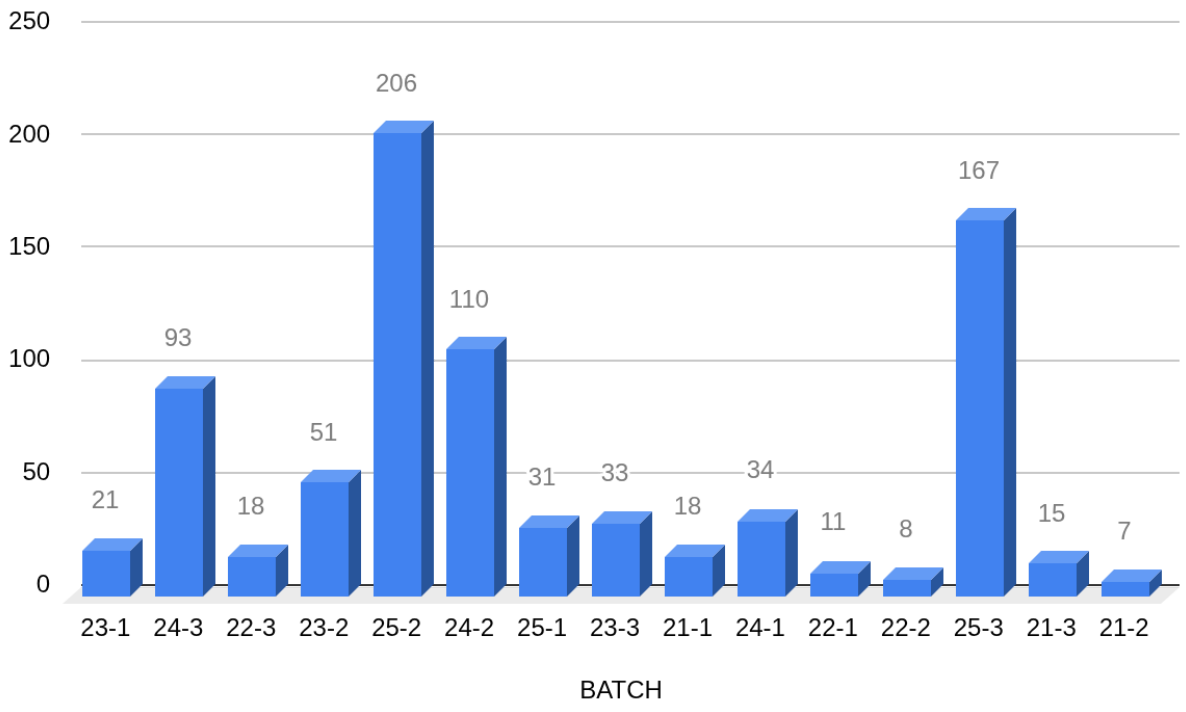



▸ AVG. Participant Expertise in the AI-ML domain (on 10 pt. scale, as per the registration survey)

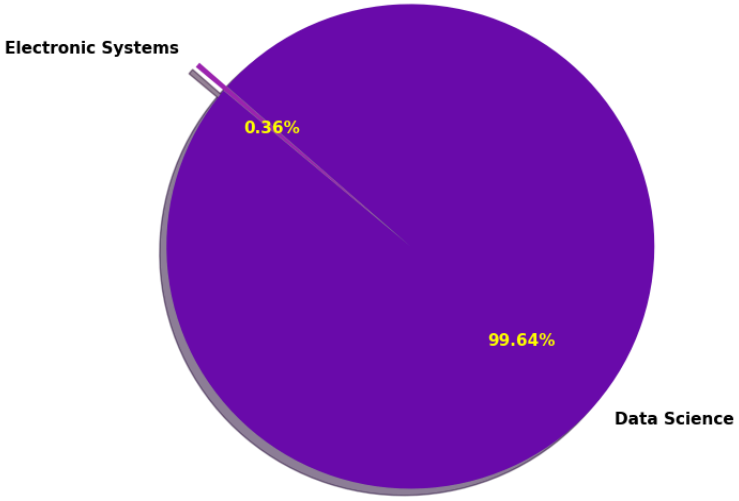



## ▸ Batch-wise Registration Share (%)

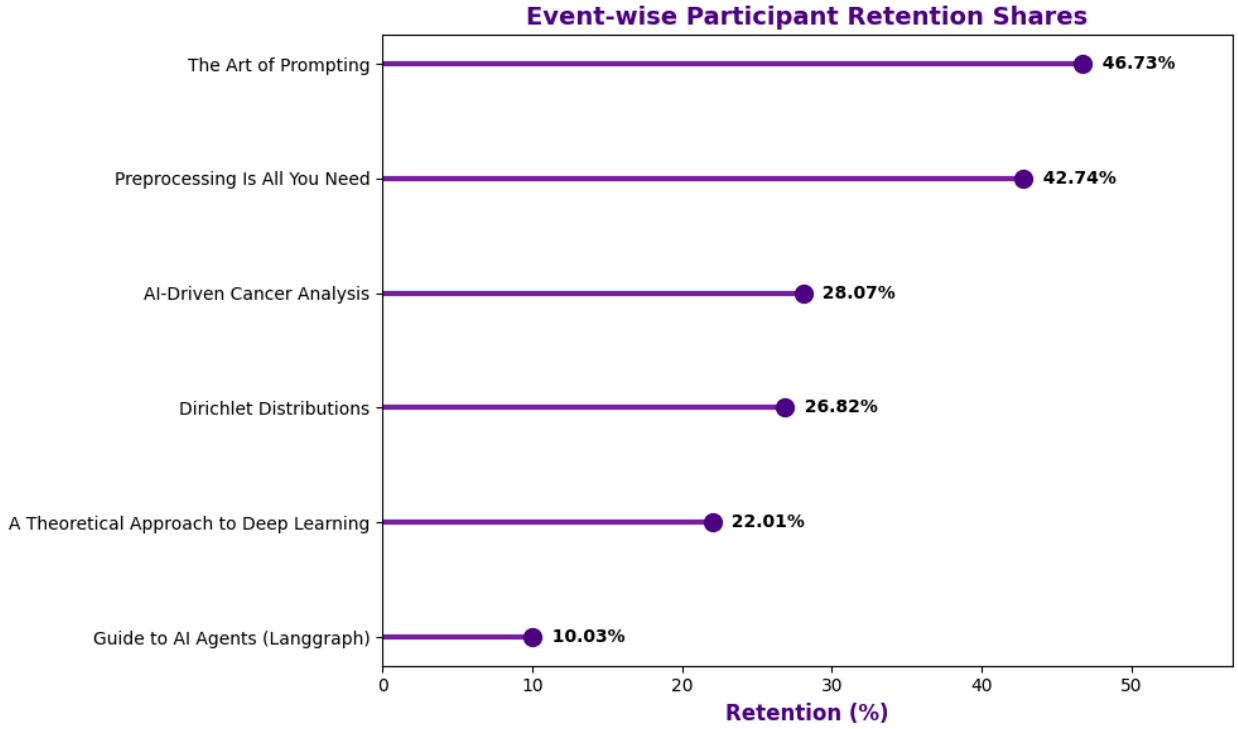
We had members starting from the first to the latest batch!



## ▸ Stream-wise Registration Share (%)



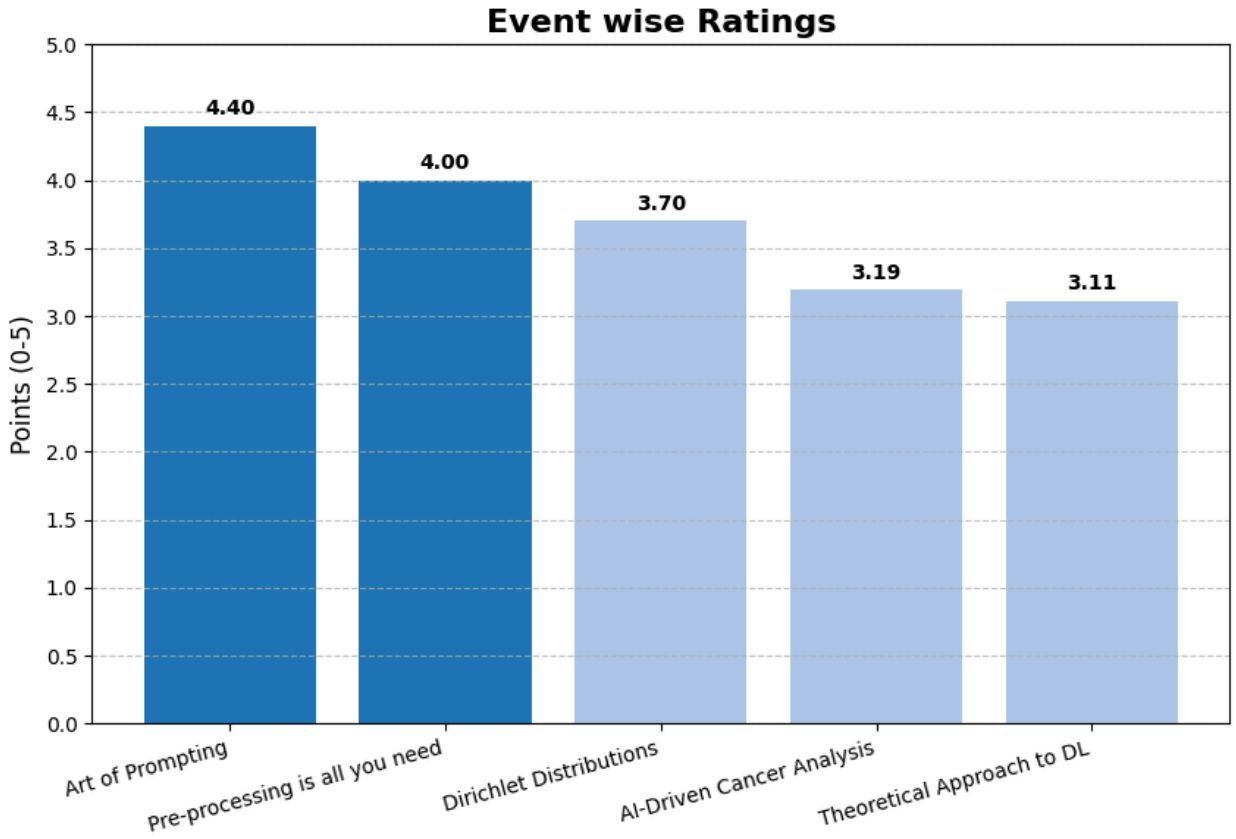

## ▸ Event-wise Active Participation / Retention Shares (%)



*Note: The Langgraph talk couldn't be completed fully and had to be cancelled due to unavoidable circumstances from the speaker's end.*

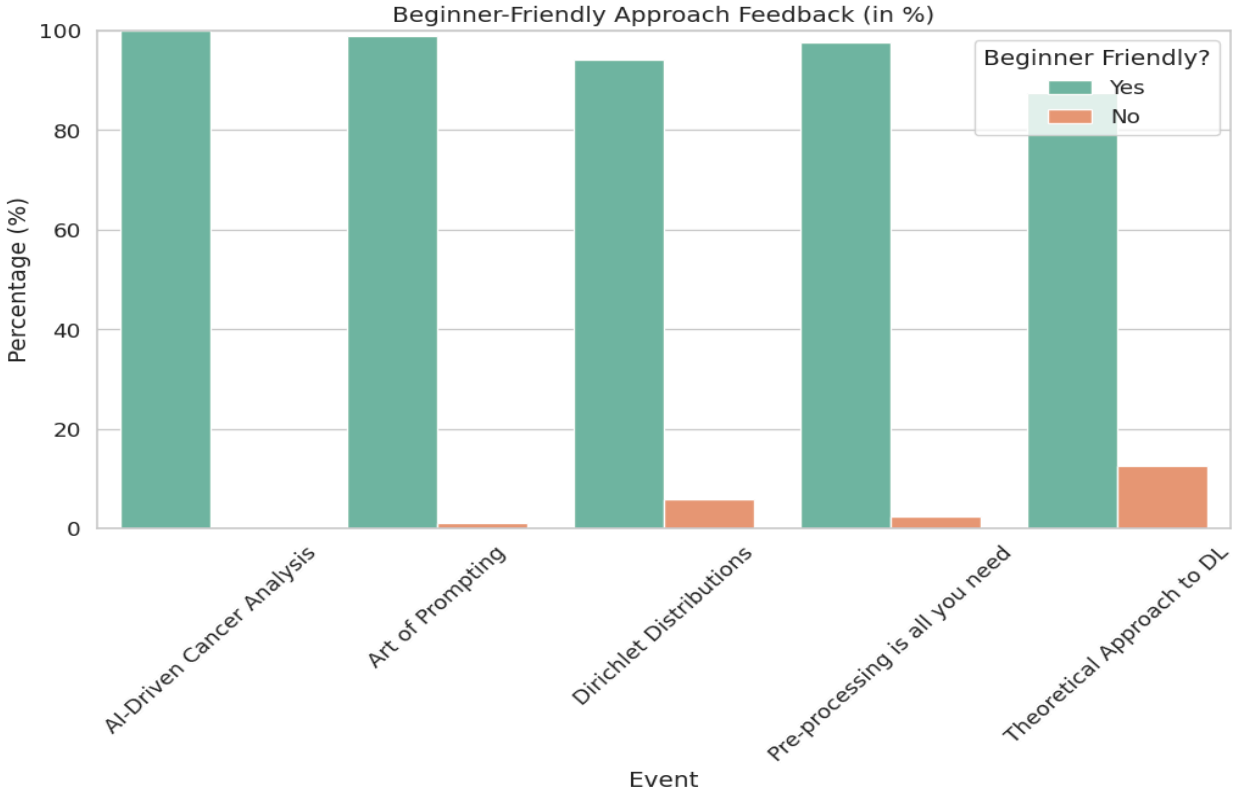
▸ Event-wise Feedback Stats (Some of the rubrics are shown below)

❖ **Rubric-1:** Overall rating for the talk/workshop? (on a 5 pt. scale)

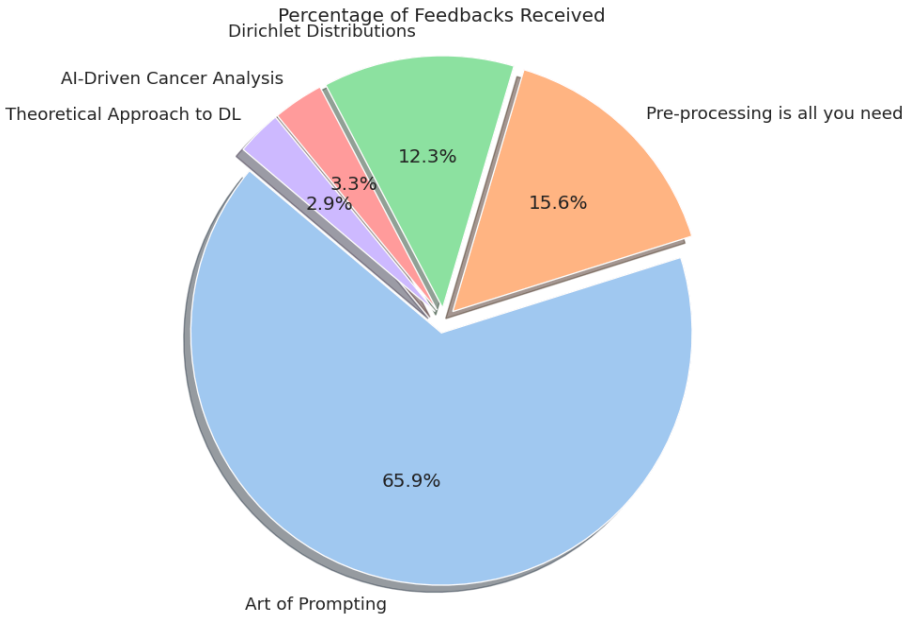



❖ **Rubric-2:** How insightful, relevant and helpful do you think the content covered was for you? (on a 5 pt. scale)


❖ **Rubric-3:** Was it covered in a beginner-friendly approach? (Yes/No)




Comments in the appendix.




## Conclusion

Comments: The series included a range of talks and workshops, from hands-on sessions in NLP to discussions on Deep Learning theory and AI applications in healthcare and other domains, mainly designed for the foundational and diploma students. **The initiative has been a huge success, as evident from the impactful results, promising stats and overwhelming student feedback.** To the best of our knowledge, such a registration count has never been achieved in any PAN BS event here, to date. We sincerely thank all the participants and speakers for contributing to the success of this project even during the Diwali break. The event could be efficiently managed using our ML series (LogicLooM) event management portal that supports all sorts of features including registrations, automated cert processing & mail reminders for registrants. The content management was done by the web-ad & multimedia team of Wayanad House. Subscribed meet support was provided by Pritesh Gupta, SEC member. Outreach was jointly done by Shubham sir (instructor, Lead of the seminar series) & ML series team- **thanks to IITM-BS support**. Our heartfelt thanks to Kothai mam, Head-BS Student Affairs, for approving the appreciation certificates for participants with outstanding engagement and performance in the hands-on tasks.

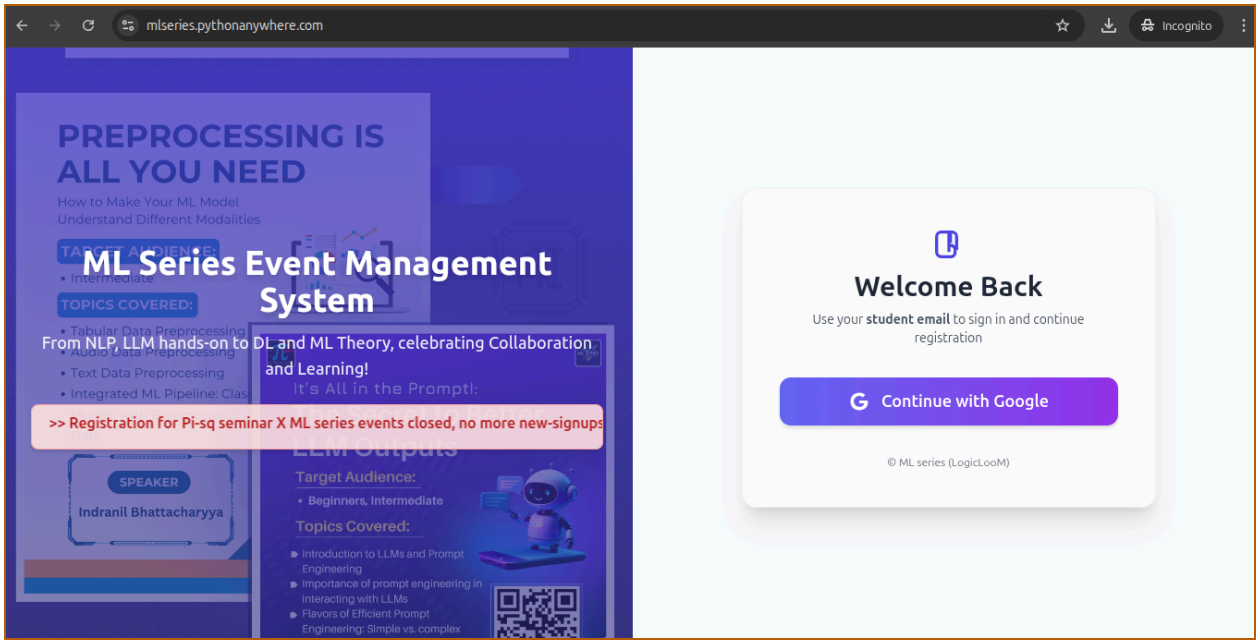
Further, the resources (abstract, topics, video recordings, slides, codes etc.) are publicly made available at youtube.com/@ml_decoded and sites.google.com/ds.study.iitm.ac.in/pisq-seminar-mls for the benefit of the student community.

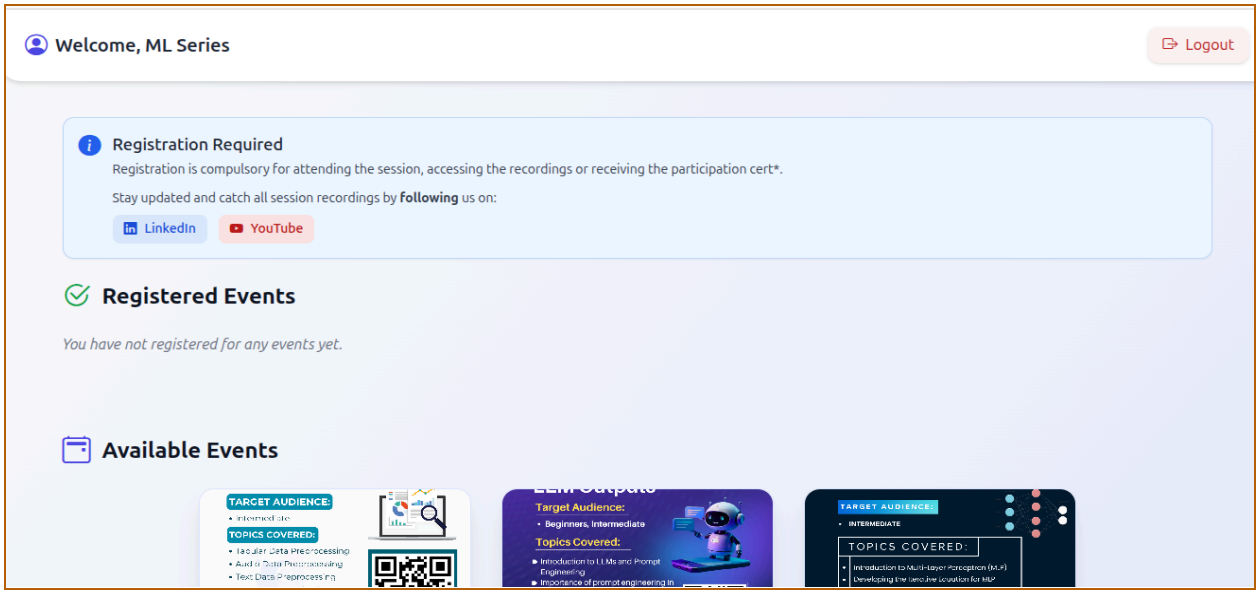
– ML Series Team

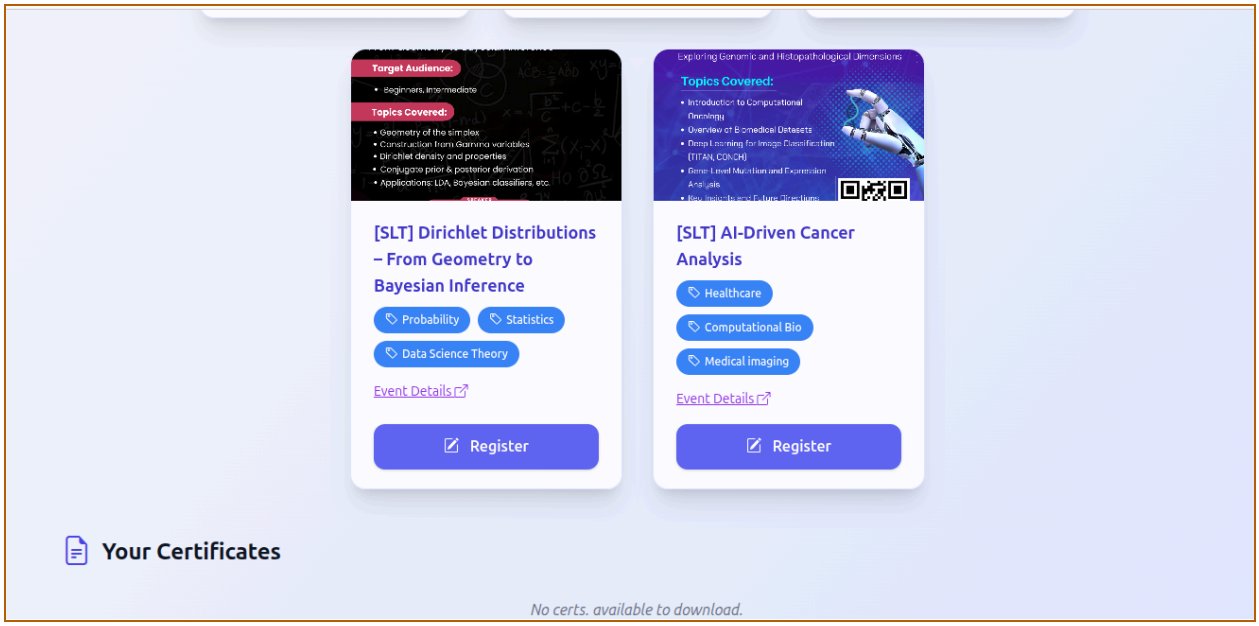
# Appendix

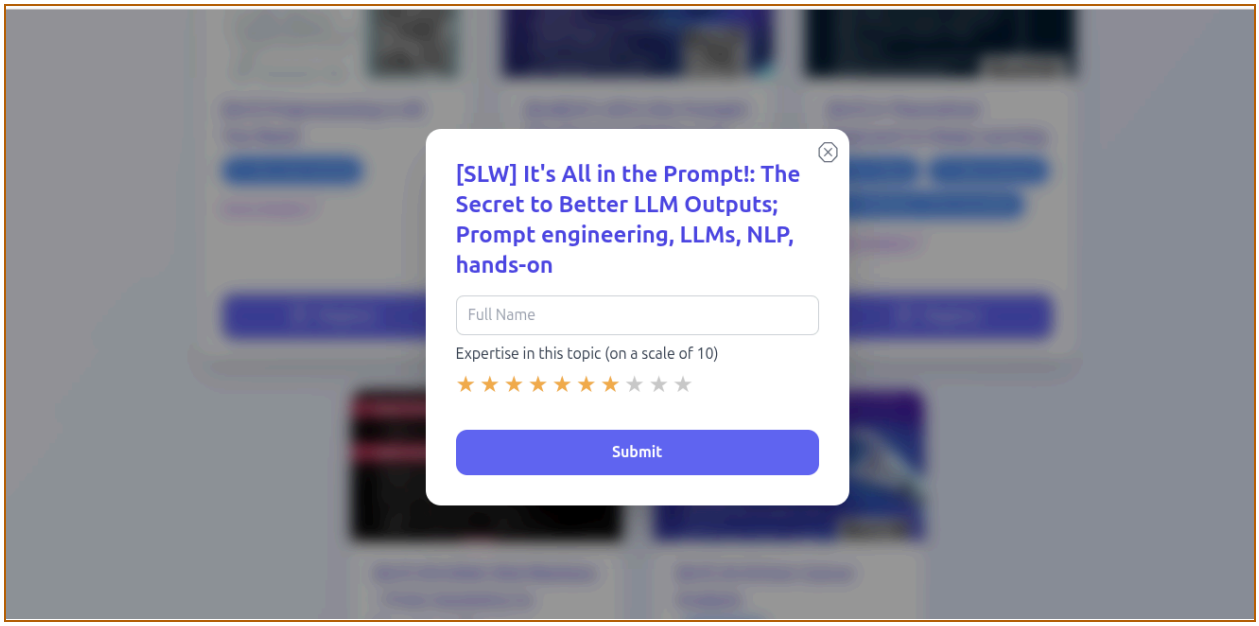
**A. Some screenshots from the event execution.**

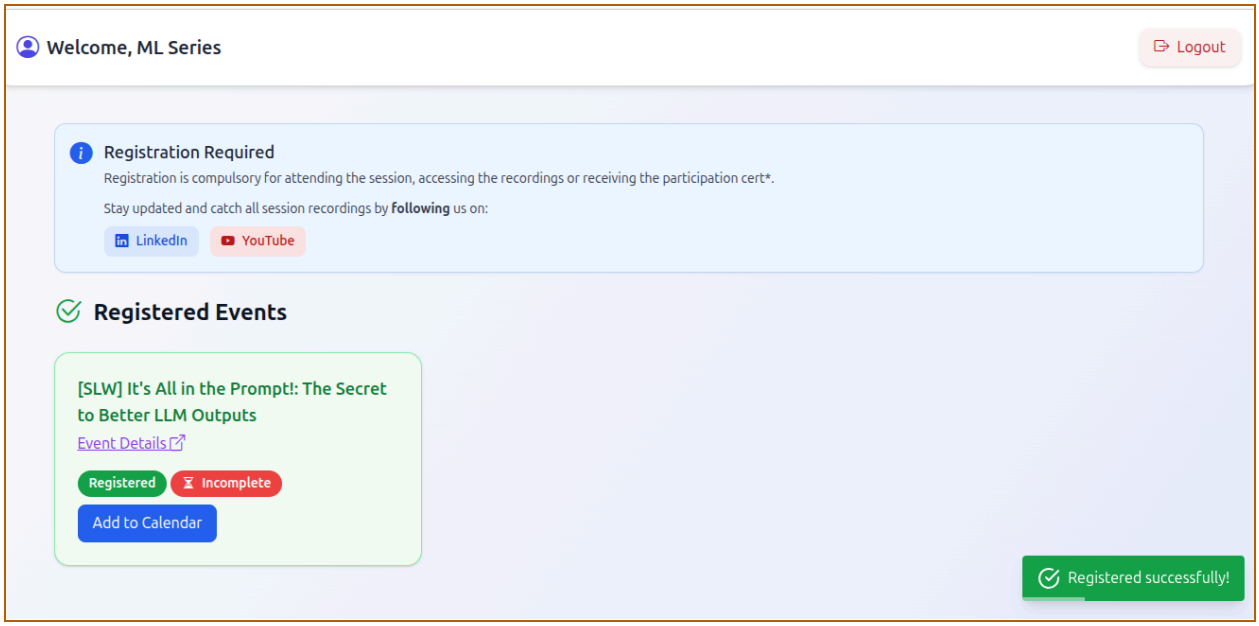
*Event Management Portal*



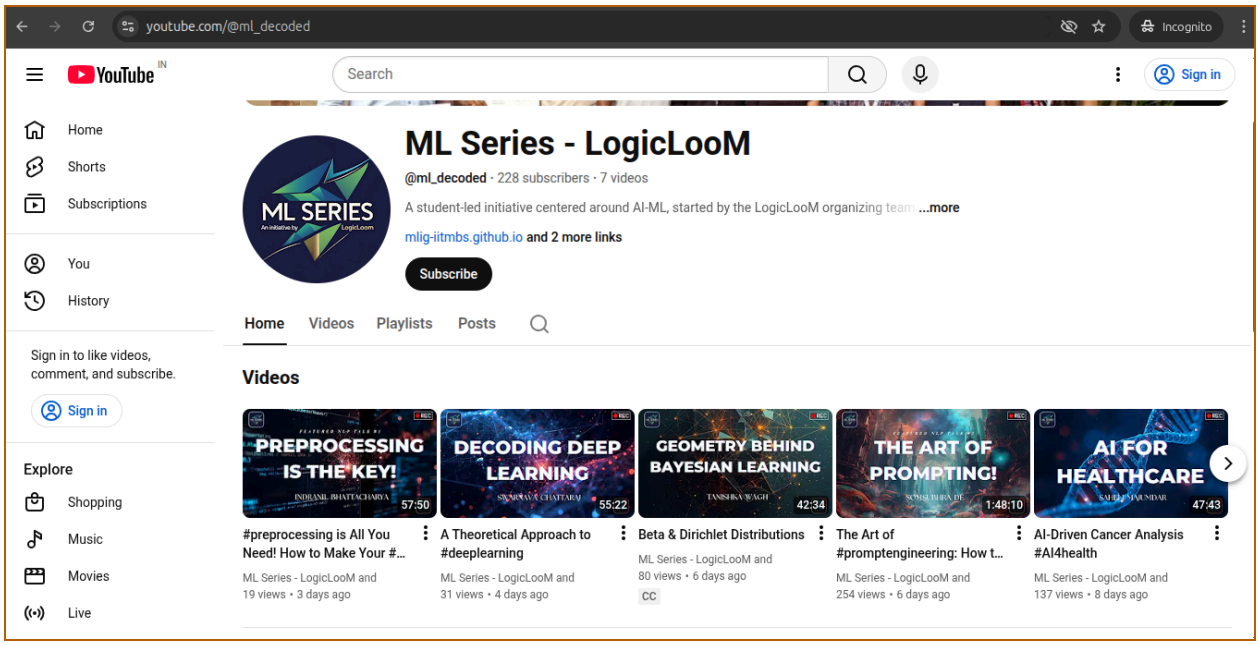

Welcome, ML Series
Logout
Registration Required
Registration is compulsory for attending the session, accessing the recordings or receiving the participation cert*.
Stay updated and catch all session recordings by following us on:
LinkedIn
YouTube
Registered Events
You have not registered for any events yet.
Available Events
TARGET AUDIENCE:
TOPICS COVERED:
Target Audience:
Beginners, Intermediate
Topics Covered:
TARGET AUDIENCE:
INTERMEDIATE
TOPICS COVERED:


Target Audience:
Beginners, Intermediate
Topics Covered:
Geometry of the simplex
Construction from Gamma variables
Dirichlet density and properties
Conjugate prior & posterior derivation
Applications: LDA, Bayesian classifiers, etc.
[SLT] Dirichlet Distributions – From Geometry to Bayesian Inference
Probability
Statistics
Data Science Theory
Event Details
Register
Topics Covered:
Introduction to Computational Oncology
Overview of Biomedical Datasets
Deep Learning for Image Classification (TITAN, CONCH)
Gene-Level Mutation and Expression Analysis
[SLT] AI-Driven Cancer Analysis
Healthcare
Computational Bio
Medical imaging
Event Details
Register
Your Certificates
No certs. available to download.




*Snapshots from the sessions*


youtube.com/@ml_decoded
Incognito
YouTube
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Sign in
Home
Shorts
Subscriptions
You
History
Sign in to like videos, comment, and subscribe.
Sign in
Explore
Shopping
Music
Movies
Live
ML Series - LogicLooM
@ml_decoded · 228 subscribers · 7 videos
A student-led initiative centered around AI-ML, started by the LogicLooM organizing team ...more
mlig-iitmbs.github.io and 2 more links
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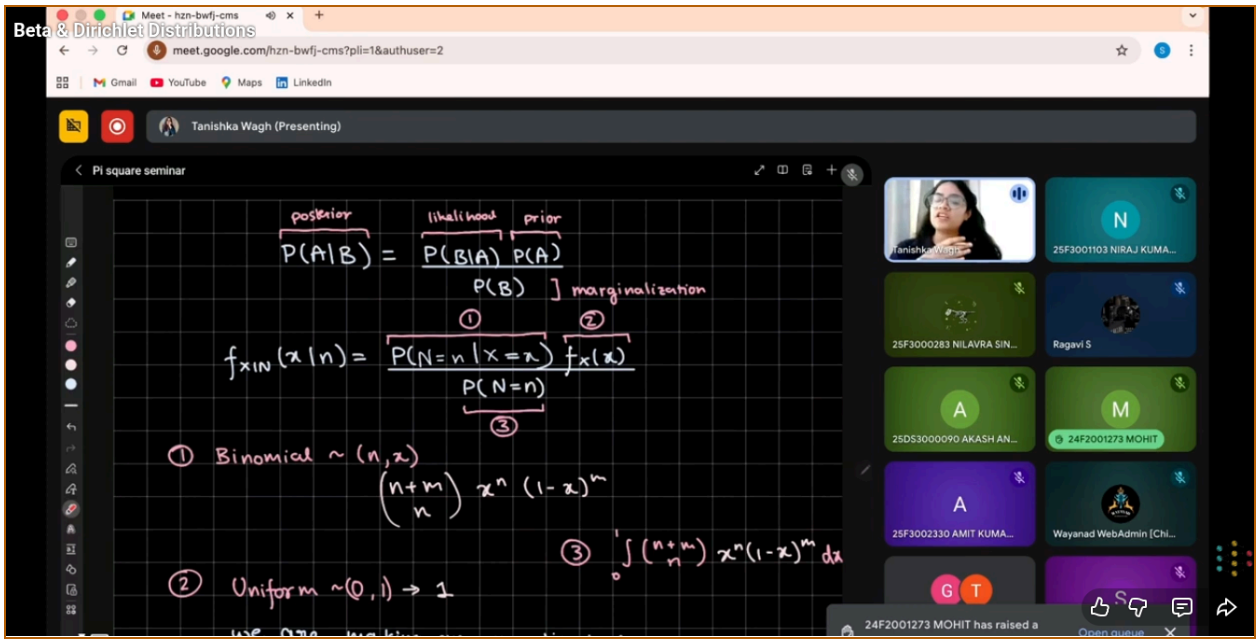
Videos
Playlists
Posts
Videos
PREPROCESSING IS THE KEY!
57:50
#preprocessing is All You Need! How to Make Your #...
ML Series - LogicLooM and
19 views • 3 days ago
DECODING DEEP LEARNING
55:22
A Theoretical Approach to #deeplearning
ML Series - LogicLooM and
31 views • 4 days ago
GEOMETRY BEHIND BAYESIAN LEARNING
42:34
Beta & Dirichlet Distributions
ML Series - LogicLooM and
80 views • 6 days ago
CC
THE ART OF PROMPTING!
1:48:10
The Art of #promptengineering: How t...
ML Series - LogicLooM and
254 views • 6 days ago
AI FOR HEALTHCARE
47:43
AI-Driven Cancer Analysis #AI4health
ML Series - LogicLooM and
137 views • 8 days ago


Beta & Dirichlet Distributions
meet.google.com/hzn-bwfj-cms?pli=1&authuser=2
Tanishka Wagh (Presenting)
Pi square seminar
posterior
likelihood
prior
P(A|B) = P(B|A) P(A) / P(B)
marginalization
Binomial ~ (n, x)
Uniform ~ (0, 1) → 1
25F3001103 NIRAJ KUMA...
25F3000283 NILAVRA SIN...
Ragavi S
25DS3000090 AKASH AN...
24F2001273 MOHIT
25F3002330 AMIT KUMA...
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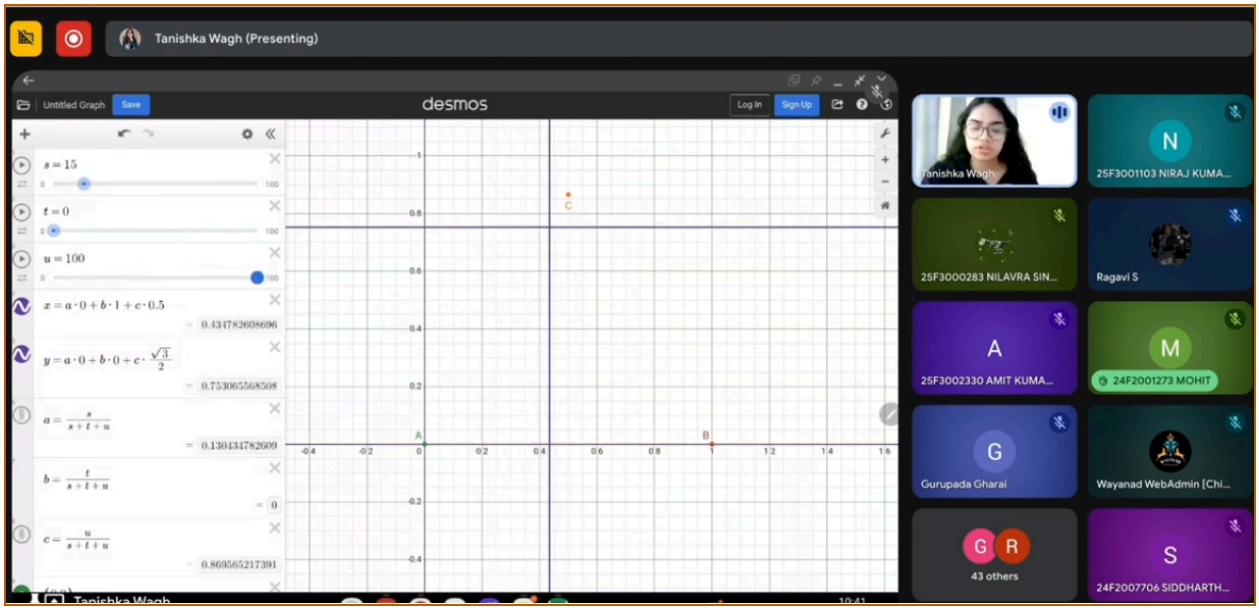
Tanishka Wagh (Presenting)
Untitled Graph
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Log In
Sign Up
25F3001103 NIRAJ KUMA...
25F3000283 NILAVRA SIN...
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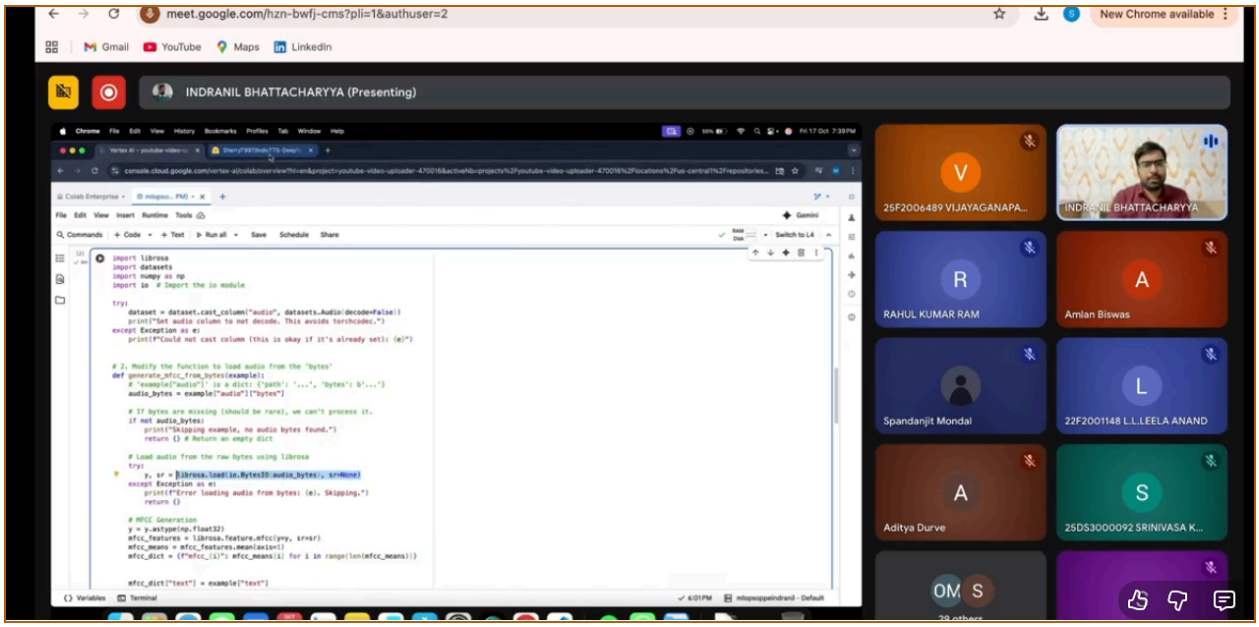
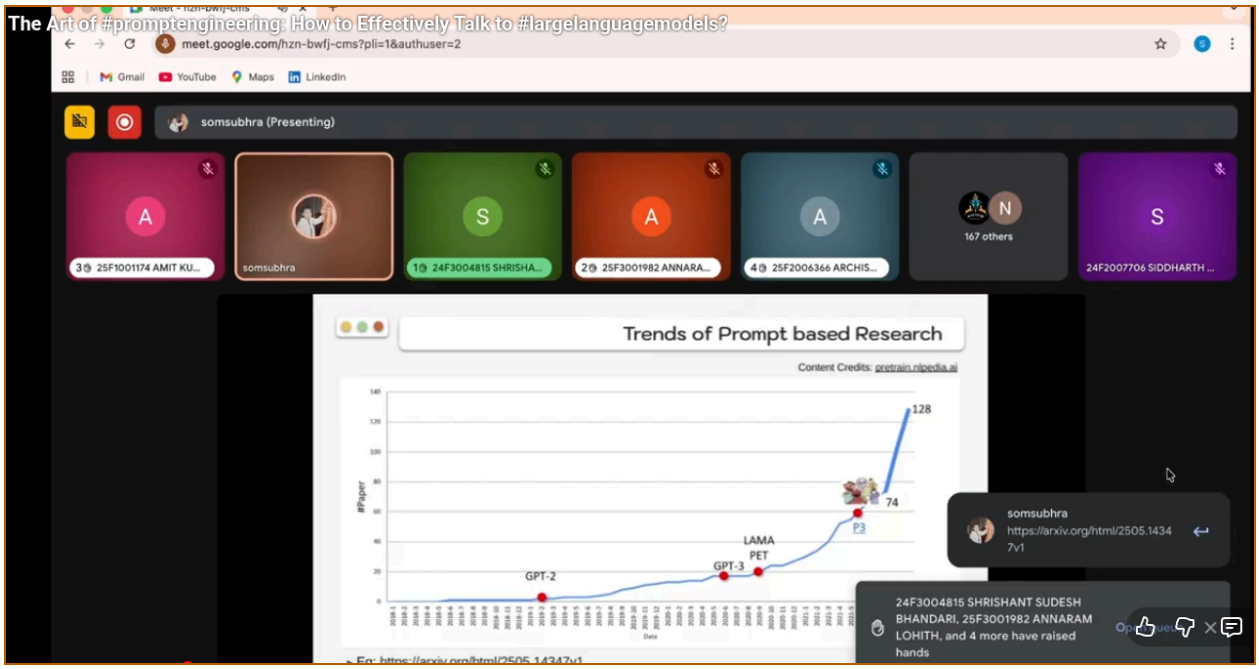
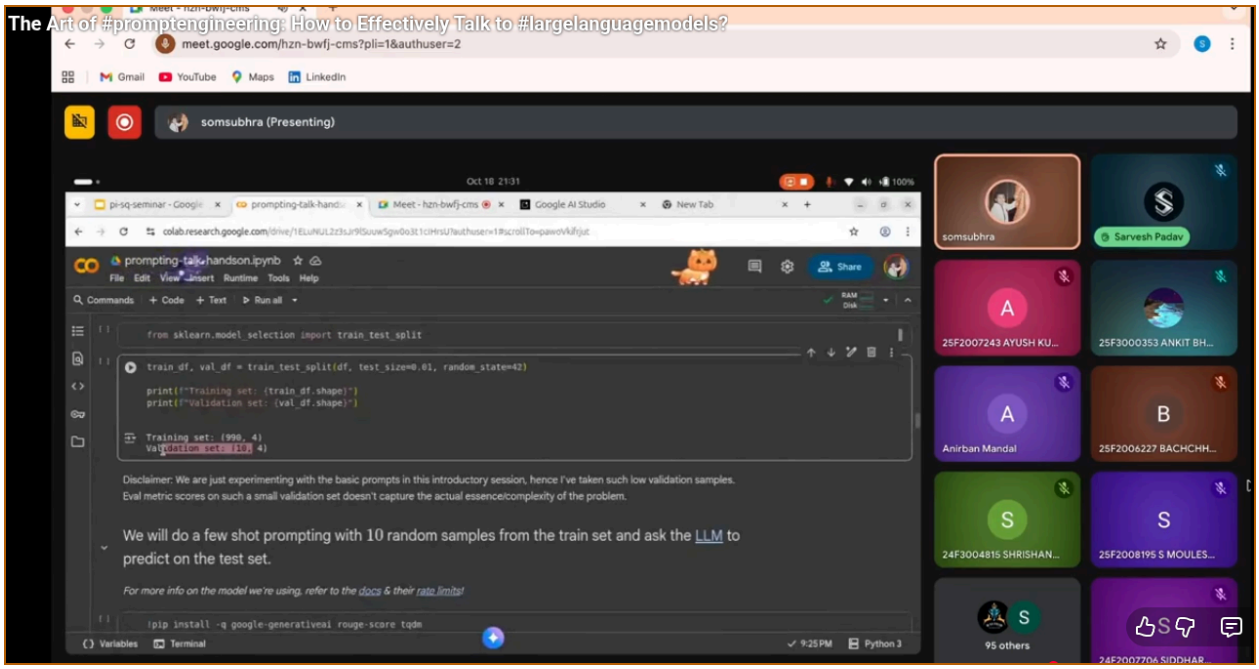
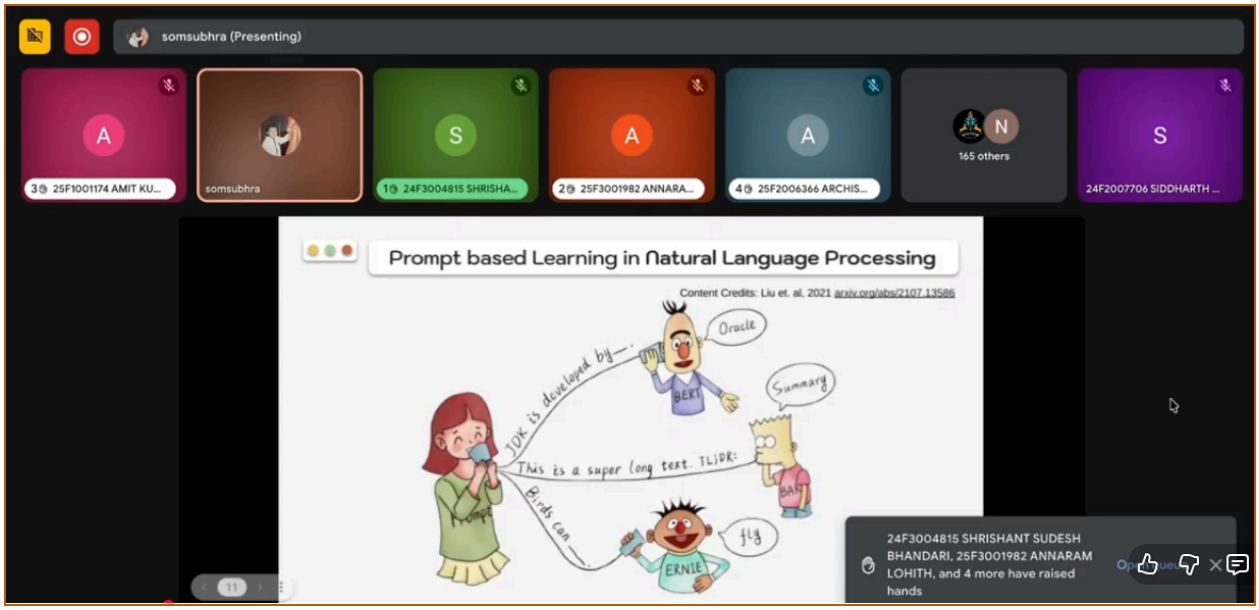
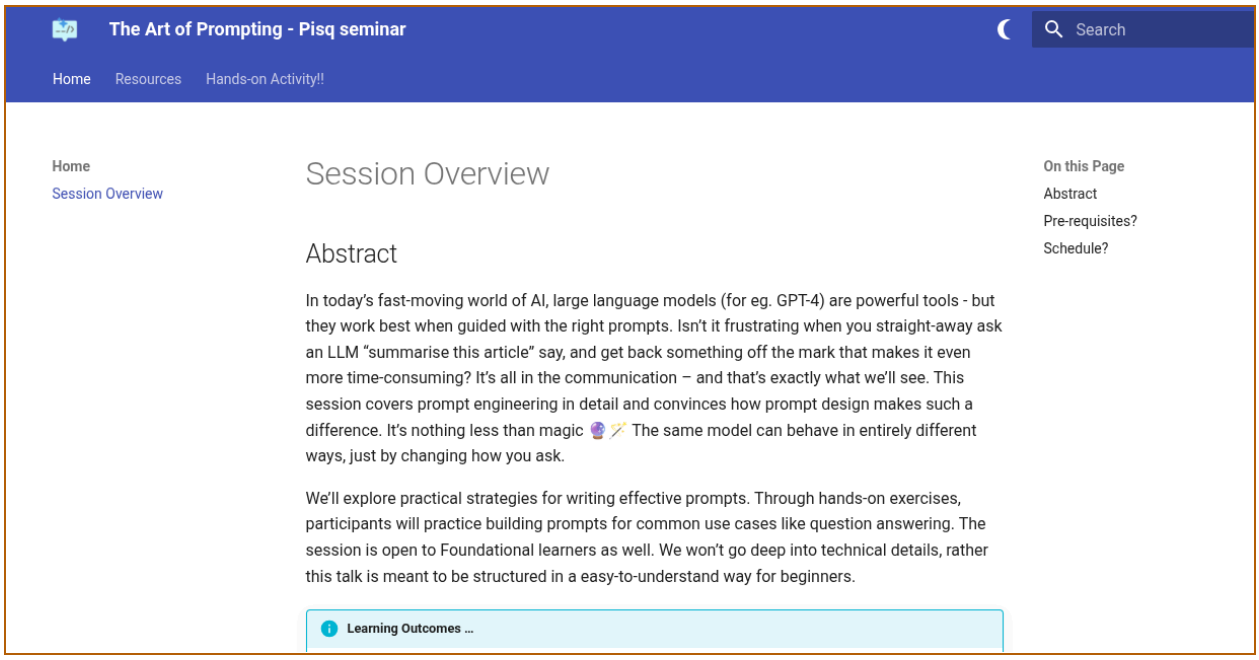
Wayanad WebAdmin [Chi...
43 others
24F2007706 SIDDHARTH...

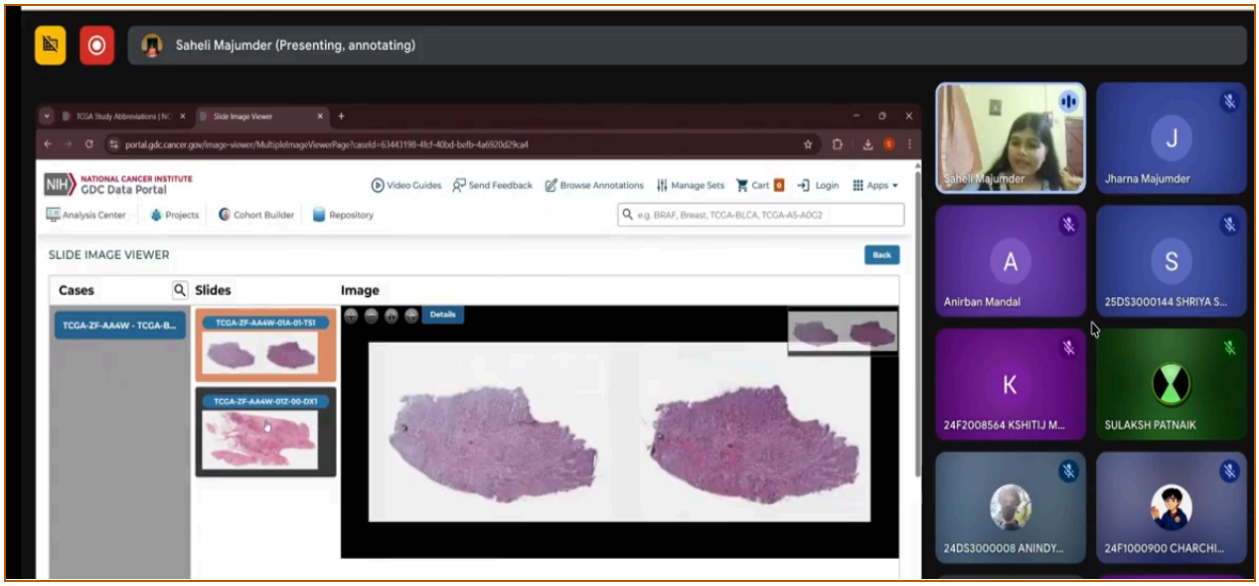

meet.google.com/hzn-bwfj-cms?pli=1&authuser=2
New Chrome available
Gmail
YouTube
Maps
LinkedIn
INDRANIL BHATTACHARYYA (Presenting)
25F2006489 VIJAYAGANAPA...
INDRANIL BHATTACHARYYA
RAHUL KUMAR RAM
Amlan Biswas
Spandanjit Mondal
22F2001148 L.L.LEELA ANAND
Aditya Durve
25DS3000092 SRINIVASA K...

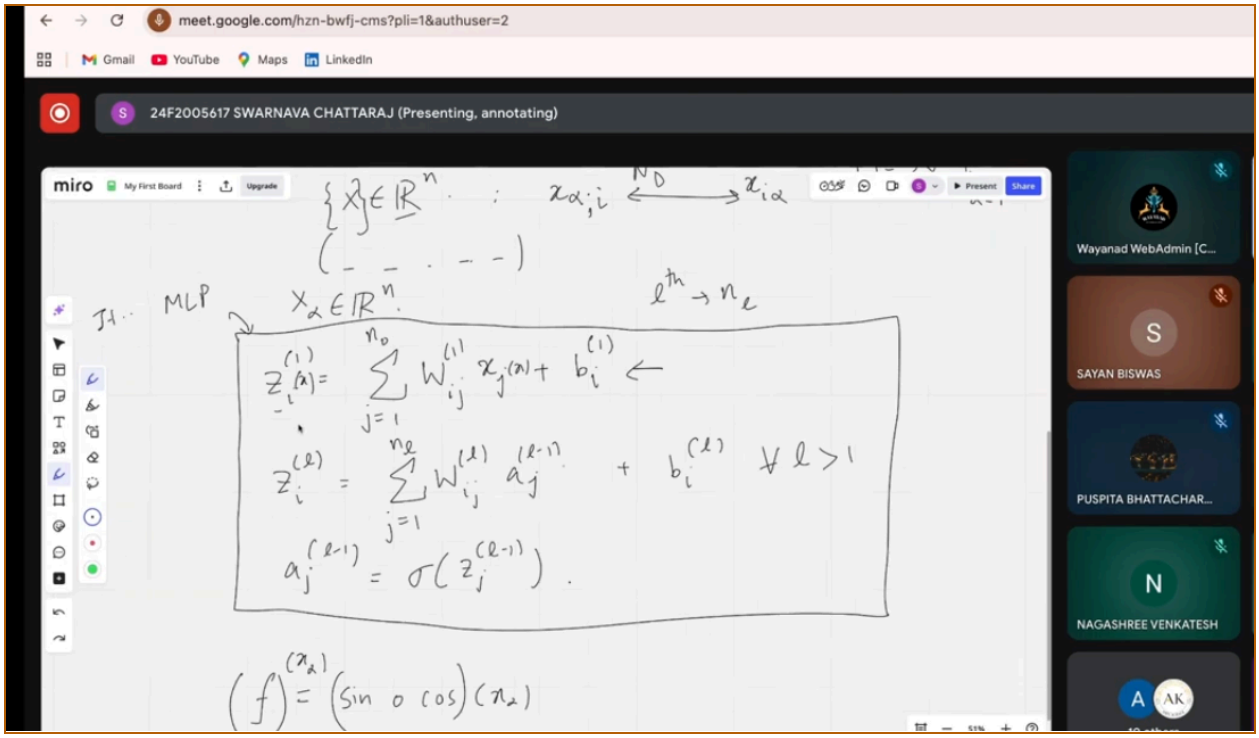

The Art of #promptengineering: How to Effectively Talk to #largelanguagemodels?
meet.google.com/hzn-bwfj-cms?pli=1&authuser=2
somsubhra (Presenting)
Trends of Prompt based Research
Content Credits: pretrain.nlpedia.ai
GPT-2
GPT-3
LAMA
PET
P3
128
74
#Paper
somsubhra
https://arxiv.org/html/2505.1434
7v1
24F3004815 SHRISHANT SUDESH BHANDARI, 25F3001982 ANNARAM LOHITH, and 4 more have raised hands


The Art of #promptengineering: How to Effectively Talk to #largelanguagemodels?
meet.google.com/hzn-bwfj-cms?pli=1&authuser=2
somsubhra (Presenting)
prompting-talk-handson.ipynb
Disclaimer: We are just experimenting with the basic prompts in this introductory session, hence I've taken such low validation samples. Eval metric scores on such a small validation set doesn't capture the actual essence/complexity of the problem.
We will do a few shot prompting with 10 random samples from the train set and ask the LLM to predict on the test set.
For more info on the model we're using, refer to the docs & their rate limits!


somsubhra (Presenting)
somsubhra
165 others
24F2007706 SIDDHARTH ...
Prompt based Learning in Natural Language Processing
Content Credits: Liu et. al, 2021 arxiv.org/abs/2107.13586
Oracle
Summary
BERT
This is a super long text. TLjDR:
ERNIE
24F3004815 SHRISHANT SUDESH BHANDARI, 25F3001982 ANNARAM LOHITH, and 4 more have raised hands


The Art of Prompting - Pisq seminar
Search
Home
Resources
Hands-on Activity!!
Home
Session Overview
Session Overview
Abstract
In today's fast-moving world of AI, large language models (for eg. GPT-4) are powerful tools - but they work best when guided with the right prompts. Isn't it frustrating when you straight-away ask an LLM "summarise this article" say, and get back something off the mark that makes it even more time-consuming? It's all in the communication – and that's exactly what we'll see. This session covers prompt engineering in detail and convinces how prompt design makes such a difference. It's nothing less than magic 🔮🪄 The same model can behave in entirely different ways, just by changing how you ask.
We'll explore practical strategies for writing effective prompts. Through hands-on exercises, participants will practice building prompts for common use cases like question answering. The session is open to Foundational learners as well. We won't go deep into technical details, rather this talk is meant to be structured in a easy-to-understand way for beginners.
Learning Outcomes ...
On this Page
Abstract
Pre-requisites?
Schedule?




**B. Selected*** Feedbacks/Suggestions from Attendees – Direct quotes, <u>unmodified</u>!**

****highlighting comments with more than just a few words*

- ❖ Pre-processing is all you need (Speaker: Indranil Bhattacharya)

| |
|---|
| I'm a beginner in ML and the session was very useful to me. |
| The content delivery can be better |
| I personally felt timing was limited. Topics were really worth exploring, a little more time would have been helpful. |
| Could have been more example(like implementation) and intuition based . But overall a great session to attend |
| I am very new to audio data and NLP processing. So this helped me to get the basic idea. Yes found it interesting. The session can be a little longer. |
| Need more such sessions on frequent basis |
| It's overall Amazing |
| going through the code for processing the audio data was nice, would like to see some more hands on examples |
| Please suggest particular tools (like PowerBI, Tableau for Data Visualization) to practice ML projects |
| The session could be a little longer with hands-on experience with pre-processing. I did found it interesting. Helped me to understand how pre processing is important |
| It was very interesting. The one thing that caught my attention the most was the discussion on the protein function data on Kaggle. It could have been better if there had been a more detailed discussion about it and how preprocessing works for such data. I would have enjoyed this discussion even more since I have a background in biology. |

### ❖ The Art of Prompting (Speaker: Somsubhra De)

| |
|---|
| Yes,it was interesting, I learnt new things about prompt engineering and also had a hands on project using google colab and gemini api key. |
| I really enjoyed the session. Learnt about prompt engg in details. Interest increased i must say. |
| first time I have used google colab notebook as i was not having an idea how llm ai works. by doing this activity i gained much idea about if i want to make any project which check the handwriting of human |
| Excellent. It helped me gain interest. Worth mentioning is the hands on component. |

| |
|---|
| I learnt the logic of prompting and how it trigger models to get the exact answer |
| It was a very interesting session. I actually missed the first session, but it was not a problem. I could understand whatever the instructor was teaching and as a beginner it was very much insightful for me. Yes, it helped me to gain interest in the field. |
| My key takeaways were the new ways I could give my prompts. Another one was using the Google AI Studio api key and implementing it in colab to answer certain problems. Yes, it certainly made me interested in the field and has made me eager to explore more on my own. Overall quality of the session was good and the instructor explained everything in detail and repeated it many times if anyone had doubts. |
| The hands on session was really helpful in getting started with experimenting and learning on my own |
| I am beginner so the theory was helpful but face a lot of difficulty in following the hands on activity |
| Yes definitely it increased my interest in the AI field given that I wasn't earlier. I loved the entire discussion of prompt engineering. Really insightful. |
| Insightful session! Learned how prompt wording shapes AI responses. Practical, engaging, and sparked my interest in exploring prompt engineering further. |
| My key take-aways were the practical tips on structuring prompts, specifically the concept of using a 'Chain of Thought' to dramatically improve complex reasoning tasks. The speaker's examples of using system roles and clear delimiters made the technical concepts very accessible. Yes, it absolutely helped me gain interest in the field! I now see prompting as a creative and technical skill, rather than just basic input. The quality of the presentation was excellent—well-paced, engaging, and highly informative, with great real-world examples. Worth-mentioning: The slide showing the difference in output between a vague prompt and a highly-structured prompt was a game-changer. It was the best illustration of the "Secret to Better LLM Outputs." |
| Explanations were very simple and easy to understand. It was fantastic. |
| , kindly do these kind of beginner friendly sessions with Complex topics like Deep Learning or Roadmap to become ML Engineer or Data Analyst. I know we are doing a course of it but still people struggle to get even a basic internship due to poor skills, if you can guide people, some specific things about what to do, rather than saying do everything in this Degree (which everyone should but only 1-3% of the people do it). It will help Foundation and Diploma Students like me a lot, or if we can gain even 1 to 2 things out of it that would be great. |

| |
|---|
| The session gave me a deeper understanding of how prompt design influences the performance and output quality of AI models. I learned the importance of being clear, specific, and goal-oriented while crafting prompts. It was interesting to see how slight variations in wording can lead to completely different results. The overall quality of the session was very good. The presenters explained concepts clearly and made the session interactive. The flow was smooth, and the examples used were easy to relate to. |
| loved the mentor and it was great to gain insights to prompt engineering |
| Sorry I couldn't join on time for this session, but I got glimpse of the end part and that was amazing! |
| Yes, it was a great session. Easy, precise and good explanation. |

### ❖ AI-Driven Cancer Analysis (Speaker: Saheli Majumdar)

| |
|---|
| it was very interesting, enjoyed the session |
| It was very insightful, I am interested in exploring AI in healthcare and this session helped me discover a new dimension of computation in oncology. Loved the session. |
| I was overwhelmed by the session I'm glad to know about healthcare with ai , this is something new for me. |
| Extremely interesting and innovative session. Thank you Saheli ma'am. |
| It was fantastic, I am beginner then also I found it very interesting |

### ❖ Theoretical Approach to DL (Speaker: Swarnava Chattaraj)

| |
|---|
| Would have loved to see some practical illustrations as well alongside |
| The session was good, but deep learning is new to me so it became a bit difficult for me to understand, but i will definitely refer to the book for more clarity and knowledge. |
| I found it interesting. One disadvantage is that I have to revise the maths done in the session once more to be clear. Found a little difficulty in understanding the entire maths involved in deep learning. |

❖ Dirichlet Distributions (Speaker: Tanishka Wagh)

| |
|---|
| She was wonderful and a joy to listen to. |
| it was really good |
| Mam please teach little slower |
| Introduced Dirichlet Distributions to me and its geometrical representations were interesting |
| It was genuinely helpful and well-presented. I appreciated the clarity and thoughtful design—keep up the great work. |
| it would be better if you'd have a pre preparation She told a good amount of stuff but then she was bit suffering in explaining I think this is due to some overwhelming experience |
| Because now I am in foundation level, that's why I didn't get some points but overall experience was good and gave me an overview of the topic. |
| Yes it's quite interesting and a good conceptual introduction to Bayesian thinking. |

**C. Event Details**

| ***The Art of Prompting: How to effectively talk to LLMs? – Somsubhra De*** | | |
|---|---|---|
| **Estimated Effort Time:** **120-180 mins** (across all sessions) | **Target Audience:** Beginners, Intermediate | **Tags:** Prompt engineering LLMs NLP hands-on |
| **Abstract, Learning Outcomes**<br><br>In today's fast-moving world of AI, large language models (for eg. GPT-4) are powerful tools - but they work best when guided with the right prompts. Isn't it frustrating when you straight-away ask an LLM "summarise this article" say, and get back something off the mark that makes it even more time-consuming? It's all in the communication – and that's exactly what we'll see. This session covers prompt engineering in detail and convinces how prompt design makes such a difference. It's nothing less than magic 🔮🪄 The same model can behave in entirely different ways, just by changing how you ask.<br><br>We'll explore practical strategies for writing effective prompts. Through hands-on exercises, participants will practice building prompts for common use cases like question answering. The session is open to | | |

Foundational learners as well. We won't go deep into technical details, rather this talk is meant to be structured in an easy-to-understand way for beginners.

By the end (you need to follow along!), you shall get a good essence of how to design better prompts, get more out of LLMs, and apply these skills to real-world scenarios. **An additional post-session mini project will be released that participants can try, based on the concepts covered in the session.**

**Pre-requisites: Basics of Python**

**Topics Covered:**

Basics: What is a prompt? LLMs? How far have we come?
Prompt engineering? Why is it so important? How has it changed the industrial & NLP research landscape? some egs. from current research - prompt based learning
0 programming, rather communicate well. An efficient way to engineer Human - model interaction? language is all you need!
Vague input -> vague responses, frustrating? How to effectively craft & refine prompts and get desired outputs? How does it matter? Bias mitigation, hallucinations?
Risks & misuses, ethics, guardrails
The art of prompting? same goal - different outputs? How diff prompting styles play a role - N shot, role-based, contextual, instructional, meta, CoT?
MS POML- a new way to structure, maintain prompt templates
Hands-on segment: Evaluation metrics in text summarization, Machine translation? How AI responds to prompts? Experimenting with Gemini 2.5 on QA tasks, SQuAD, How to optimize prompts & achieve better scores?
Gradio Hands-on
Mini project - Computer Vision domain

Additional resources: tinyurl.com/howto-talk-to-llms

**Speaker Bio**

*I'm currently in the degree level of the DS program. Over the last two years, I've worked on research projects in NLP, Generative AI and Computer Vision, as a summer research fellow at IISER and IIT Roorkee. I enjoy working on problems that create social impact and have been an active part of communities that encourage learning and collaboration.*
*I contribute as a discourse moderator here and have mentored participants at LogicLooM, one of the flagship AI-ML events, for four consecutive editions at Paradox. Earlier, I've been a part of the CBSE-Intel AI4Youth student representative community.*

***Pre-processing Is All You Need: How to Make Your ML Model Understand Different Modalities***
***— Indranil Bhattacharya***

| **Estimated Effort Time:** **60 mins** | **Target Audience:** Intermediate | **Tags:** Data Preprocessing NLP |
|---|---|---|

**Abstract, Learning Outcomes**

This session demonstrates a data-centric approach to machine learning, emphasizing that superior performance begins with well-prepared data. The workshop's purpose is to provide handson training in building robust preprocessing pipelines for four key data types: tabular, text, image and speech/audio. Our core motivation is to prove that you don't always need a more complex model for better performance. By focusing on data quality and feature engineering, the workshop will show how to unlock the full potential of classic machine learning models and achieve state-of-the-art results, ultimately empowering participants to become more effective data professionals.

**Pre-requisites: Basic idea of ML, MLP course students**

**Topics Covered:**

Introduction: The Power of Preprocessing: Why preprocessing matters more than algorithm choice
Tabular Data Preprocessing: cleaning, transformation, feature engineering
Image Data Preprocessing: normalisation, augmentation, noise handling, OpenCV/PIL
Audio Data Preprocessing: signal cleaning, Denoising and feature extraction, Variable-length handling, LibROSA
Text data pre-processing: Tokenization, normalization, Transfer Learning Approach, sentiment classification
Integrated ML Pipeline
Discussion: why preprocessing is more impactful than changing models

**Speaker Bio**

*I am a Data Scientist working at Renault Nissan Technology and Business Center India with a passion for both professional practice and academic mentorship. Apart from being a student, I have a strong association with this program as a mentor for various courses, having served as a mentor for the MLP project for a year and as an L1 Viva examiner since 2023.*
*As a Teaching Assistant for the Software Engineering course, I had the opportunity to propose and develop "PlagTrace," an in-house plagiarism detection tool. My professional work involves delivering end-to-end data science solutions, including both traditional machine learning and Generative AI systems.*

## *A Theoretical Approach to Deep Learning — Swarnava Chattaraj*

| **Estimated Effort Time:** | **Target Audience:** | **Tags:** |
|---|---|---|
| **45-60 mins** | Intermediate | Deep Learning<br>Theory<br>Neural network<br>Initialization of the Ensembles |

**Abstract, Learning Outcomes**

There has been various theoretical work on trying to understand deep learning but most of the time the guarantees/insights are provided on an infinite width/depth neural network. The book "The Principles of Deep Learning Theory" takes a realistic route of trying to provide a framework to investigate various

theoretical insights on a finite width/depth neural network.

**Pre-requisites: Matrix Multiplication, Normal Distribution, Multivariable Differentiation**

**Topics Covered:**

Developing the iterative equation for Multi Layer Perceptron,
Crash overview of vanilla gradient descent and backpropagation,
Showing that setting all parameters to 0 initially will convert any L layer neural network with different number of neurons in each layer into an L layers neural network with one neuron in each layer, providing an alternative initialization.

Additional resources: arxiv.org/pdf/2106.10165

**Speaker Bio**

*Diploma level (IITM BS Data Science), BScHR Pure Mathematics Presidency University (Kolkata). My research interest lies in the theoretical development of learning algorithms in general.*

***Dirichlet Distributions – From Geometry to Bayesian Inference — Tanishka Wagh***

| **Estimated Effort Time:** **45-60 mins** | **Target Audience:** Beginners, Intermediate | **Tags:** Probability Statistics Data Science Theory Geometry |
|---|---|---|

**Abstract, Learning Outcomes**

When shopping online you encounter two products, one with 4.5 stars from 100 customers and another with 4.9 stars from 10 reviews, which do you pick?

Bayesian methods help us make decisions using prior knowledge and data. This session introduces the Dirichlet distribution, a key tool for modeling probabilities across multiple categories. We'll explore where it comes from, how it works, and why it's useful when working with categorical data. By the end, you'll understand how the Dirichlet helps update beliefs with new data, and where it appears in real-world applications like topic models and classification.

**Pre-requisites: Basic knowledge of probability and statistics, familiarity with multinomial distribution will be helpful**

**Topics Covered:**

- Intro & motivation (5–7 mins): Why Dirichlet? Where it shows up.
- Geometry of the simplex (5 mins): Visuals + intuition.
- Construction from Gamma variables (10 mins): Derivation + explanation.

- Dirichlet density and properties (5–7 mins): Shape, examples.
- Conjugate prior + posterior derivation (10 mins): Bayesian update math.
- Applications (5 mins): LDA, Bayesian classifiers, etc.
- Q&A or wrap-up (5 mins)

Additional resources: web.stanford.edu/class/archive/cs/cs109/cs109.1218/files/student_drive/7.4.pdf

### Speaker Bio

*I am in the Diploma level of the program (finished my data science diploma and entering my second term of programming diploma). I'm also in my third year as a Computation and Mathematics Student at Mahindra University. Last summer I did a reading project on Bayesian Theory at IISER Pune and am currently preparing for the GATE (MA) Mathematics exam. I have a knack for writing and promoting STEM. I've also recently received 2nd place in the Mahindra University Math symposium. I am also currently founding the ACM student chapter at my college. I aspire to be a Quant Researcher one day.*

## *AI-Driven Cancer Analysis: Exploring Genomic and Histopathological Dimensions — Saheli Majumder*

| **Estimated Effort Time:** **45-60 mins** | **Target Audience:** Intermediate | **Tags:** AI Healthcare Medical Imaging |
|---|---|---|

### Abstract, Learning Outcomes

This session is intended for students interested in AI & Bioinformatics. explores how AI and deep learning are transforming cancer research by integrating genomic and histopathological data. Participants will learn about TCGA datasets, deep learning models for image classification, gene-level analysis using Python, and cross-cohort insights across cancer types - showing how computational approaches can drive precision oncology.

**Pre-requisites: Understanding of Computational Biology**

### Topics Covered:

- Introduction to Computational Oncology and its significance
- Overview of TCGA datasets and cancer genomics workflows
- Deep learning for histopathological image classification (TITAN, CONCH)
- Gene-level mutation and expression analysis using Python and Pandas
- Insights from cross-cohort gene comparison across cancer types

### Speaker Bio

*I'm a CS Masters student with hands-on experience in deep learning, computational oncology, and medical image analysis. I'm currently a Research Intern at the Indian Association for the Cultivation of Science (IACS), working on histopathological image classification, gene-level mutation and expression analysis, and cross-cohort genomic exploration using deep learning frameworks. I'm passionate about applying AI to healthcare, bioinformatics and digital learning.*