Workshops Timeline

Workshop	Date	Google Meet
Linear Transformation and Attention Mechanisms	April 29, 2025	https://meet.google.com/qjq-gkcr-wai?authuser=0
From Dirty to Clean	May 2, 2025	https://meet.google.com/svs-tidu-bkk?authuser=0
Exploratory Data Analysis (EDA)	May 3, 2025	https://meet.google.com/zmo-oyzp-vrn?authuser=0
Choose Your Model	May 4, 2025	https://meet.google.com/tzt-dcqv-cix?authuser=0
Model Optimization	May 5, 2025	https://meet.google.com/roz-tfqk-fii?authuser=0

Linear Transformation and Attention Mechanisms

Date: April 29, 2025

Google Calender:
https://calendar.google.com/calendar/event?action=TEMPLATE&tmeid=NTNka2w0bDc2dTZlbzdyMGp0Y2EwNDNobWEgYW1xNDMxOUBpZWVlLm9yZw&tmsrc=amq4319%40ieee.org

Or use this code on your site so that visitors can add a copy of this event to their Google Calendar:

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Workshop Overview

Ever wondered how models know where to look?
In this workshop, you'll explore how machines use linear transformations and attention mechanisms to focus on the most important parts of the data. These concepts are key to how modern models understand context, relationships, and patterns in everything from text to images.

Purpose

Primarily, this workshop covers the core idea of transforming input data using linear operations and how attention mechanisms help models weigh information differently. You'll learn how these tools work together to help models learn smarter, not harder, and why they're essential in today's machine learning landscape.

Objective and Outcome

This workshop is essential for anyone interested in how smart systems think. Mainly, the outcome of this phase is a clear understanding of two of the most powerful ideas in AI—linear transformations and attention—and how they help models perform better across a wide range of tasks!

From Dirty to Clean

Date: May 2, 2025

Google Calender:
https://calendar.google.com/calendar/event?action=TEMPLATE&tmeid=MWZ1OGg2a2VpbDRnc2hrc211dGUxcWFqb3YgYW1xNDMxOUBpZWVlLm9yZw&tmsrc=amq4319%40ieee.org

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Workshop Overview

✨ *Data is the new oil—but only when it's clean.* ✨

The next phase after applying **data preprocessing** is to run the machine learning algorithm. The result of this phase directly affects the performance of the ML algorithm. So, it is critical to have the data ready in its final form with no wrong data, no missing values, no outliers, no duplicated rows, etc.

Purpose

The primary purpose of this phase is to have the data in its final form, ready to use for the ML algorithm. Some ML algorithms work well with categorical data and apply embedded *encoding* techniques and others do not (we should manually encode categorical columns), some of them deal well with *missing* values and apply an embedded *imputation* and some do not, and very many considerations!

Objective and Outcome

This workshop is essential for anyone in a data-driven field. It introduces methods for **data preprocessing** and **cleaning**. The main outcome of this phase is to understand these methods in order to create a **data preprocessing pipeline**.

EDA

Date: May 3, 2025

Google Cal:
https://calendar.google.com/calendar/event?action=TEMPLATE&tmeid=MDFwMTJodmdwMGI0bGc1NHZpdDJjcHRtdDAgYW1xNDMxOUBpZWVlLm9yZw&tmsrc=amq4319%40ieee.org

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alt="Google Calendar"></a>
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Overview

Curious what your data is hiding?
This workshop will help you *see* the story behind the numbers—before any model is built!

In this workshop we will go into a little more depth and understand the data.

In this phase, we will create *statistical visuals* to get an idea about the distribution of data values and how they are correlated to each other using correlation measures by building *scatter plots* and *heat maps*. We will also detect outliers (if they exist) and how to deal with them.

In this workshop, we will start working with the **Python matplotlib** library to build visualizations and extract insight from them. We will also learn about the different types of visualizations and how to choose the appropriate visualization based on each data type.

Purpose

Primarily, it will cover how to create data charts using **Python matplotlib** library and how to extract the insight about that chart! This workshop is ideal for beginners to intermediate learners eager to understand the initial steps of the data science process.

Objective and Outcome

This workshop is essential for anyone in a data-driven field to gain a deeper understanding of the story behind the data. It introduces methods for representing data as charts of various types and understanding the relationships between columns. The main outcome of this phase is to understand the data well to decide how to deal with it in the next phases of **data modeling**.

Choose Your Model

Date: May 4, 2025

Google Cal:
https://calendar.google.com/calendar/event?action=TEMPLATE&tmeid=MzI3ZzZmZWNmcGx1aTBvdjQyajlpaXRlcDAgYW1xNDMxOUBpZWVlLm9yZw&tmsrc=amq4319%40ieee.org

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Workshop Overview

Ever wondered how machines actually *learn*? □

In this workshop, you will explore various data modeling tasks and learn about different types of **machine learning algorithms**. In addition, you will be introduced to key data modeling concepts and the most common challenges encountered in the learning process and how to fine-tune your model's performance.

Purpose

Primarily, this workshop covers methods for training machine learning models using the sklearn library, based on the **pre-prepared data** (if any) from the previous step, and how to check their performance and adjust their parameters, if needed, using one of the optimization algorithms!

Objective and Outcome

This workshop is essential for anyone in a data-driven field. Mainly, the outcome of this phase is a list of 3 to 5 promising models and integrating them in one amazing ensemble model!

Model Optimization

Date: May 5, 2025

Google Cal:
https://calendar.google.com/calendar/event?action=TEMPLATE&tmeid=NGFqa2lxamo0OWc3MnE3bTIzdXNkOWM0cXMgYW1xNDMxOUBpZWVlLm9yZw&tmsrc=amq4319%40ieee.org

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Workshop Overview
Ever wondered how to make your models smarter?

In this workshop, you'll uncover the secrets of model optimization and fine-tuning. You'll explore key techniques to boost your model's performance by adjusting hyperparameters, selecting the best algorithms, and ensuring your model is working at its full potential. This is where the magic happens: turning a good model into a great one!

Purpose
In this workshop, we'll dive into various methods for optimizing and fine-tuning machine learning models using popular libraries like sklearn. You'll learn how to tune hyperparameters, implement cross-validation, and utilize optimization algorithms to maximize your model's performance. By the end, you'll know how to tweak your models to make sure they're as effective as possible!

Objective and Outcome
This workshop is perfect for anyone who wants to take their machine learning skills to the next level. The outcome? You'll leave with a set of optimized models ready for deployment—your models will be faster, more accurate, and more reliable.