

Malvern College Qingdao



# AI& Data Science

Sunday Workshop

Jamie Zhang

# Contents

1

**Intro**

2

**How to use AI**

3

**Our Solution**

4

**Go-To-Market  
Strategy**

5

**Team**

6

**Contact Information**

# About the Course

1

**Basic Programming**

2

**Data Science Tools**

3

**AI**

# Vocab

**Programming Languages:** a system of notation for writing computer programs.

编程语言：定义电脑程序的语言。

**Database:** an electronically stored, systematic collection of data.

数据库：是一个有组织的、可存取的数据集合。其主要功能是存储、管理和检索大量的数据，以支持各种应用程序的操作和决策。

**Library:** a collection of pre-written code that is designed to perform specific functions or tasks.

库：是一个预先编写的代码集合，用于执行特定的功能或任务。

# Basic Programming

SQL(Structured Query Language)

Python

Tableau

R(for some of you)



Programming  
with python



Programming  
with C++



Programming  
directly to  
binary

# Data Science Tools

Excel

Pandas

Numpy

Matplotlib

Scikit-learn





# If we have extra time

Amazon Web Service

Keras

Other Machine Learning  
Framework



# AI

Application&History of AI

Basic AI models

Others





# Projects

Final Project

Workshop Project

Kaggle





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# Jamie Zhang

Finance/Computer Science

Studied at:



Worked at:



Gaming/Lego

Taekwondo (跆拳道) for 5 years

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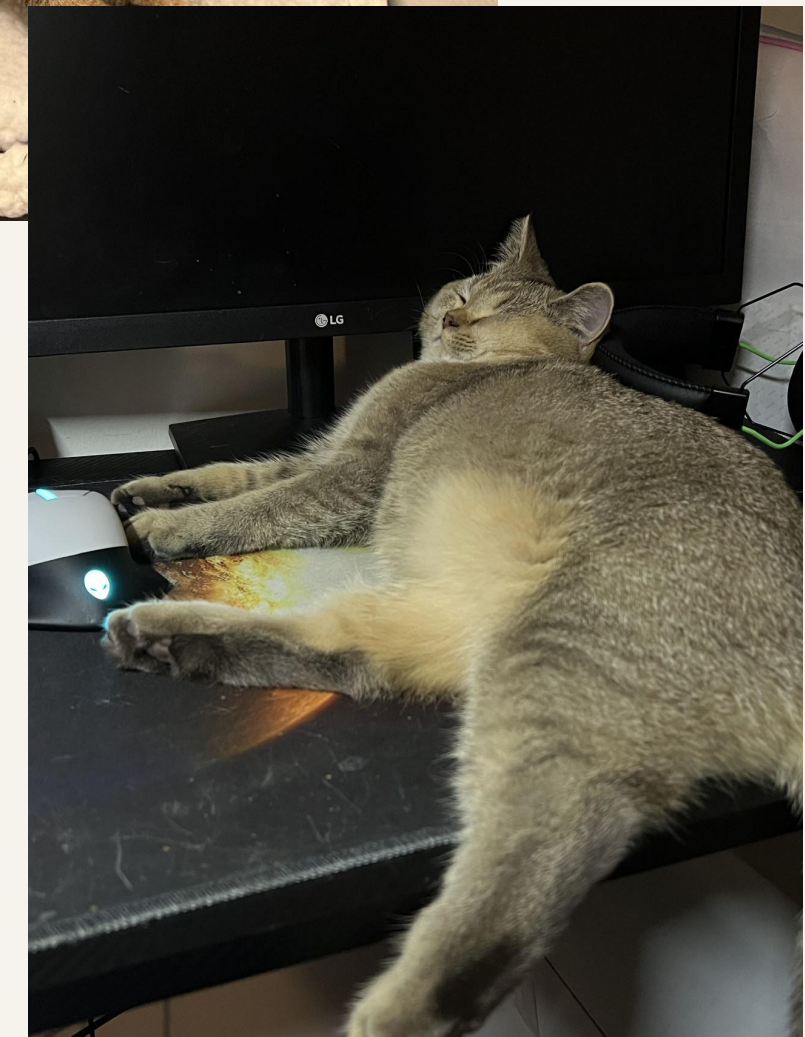
TA

Gwen

11 month British Shorthair

Cat Food Expert

Department of Architecture  
Professor of Home destroying



# Rules

**Follow Instructions properly**

**Try your best(I know it will be difficult for some of you to understand)**

**No food&drinks (except water)**

**"Talk is cheap. Show me the code." - Linus Torvalds**



# What about you?

First&last name, both Chinese and English

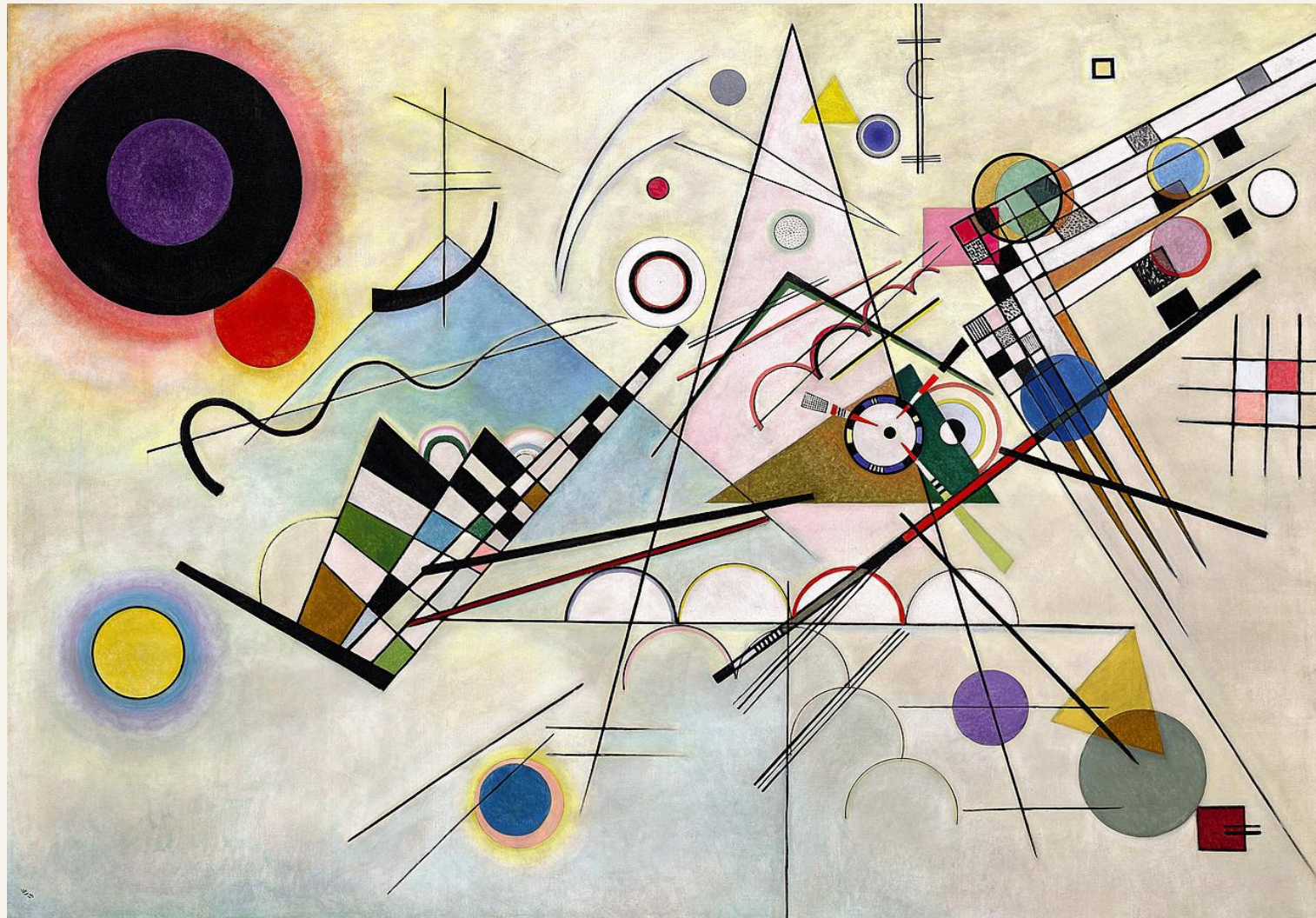
Your past experience in coding

Why do you want to join the workshop

What are you planning to do in the future (is it computer science related)

# Icebreaker





Wassily Kandinsky





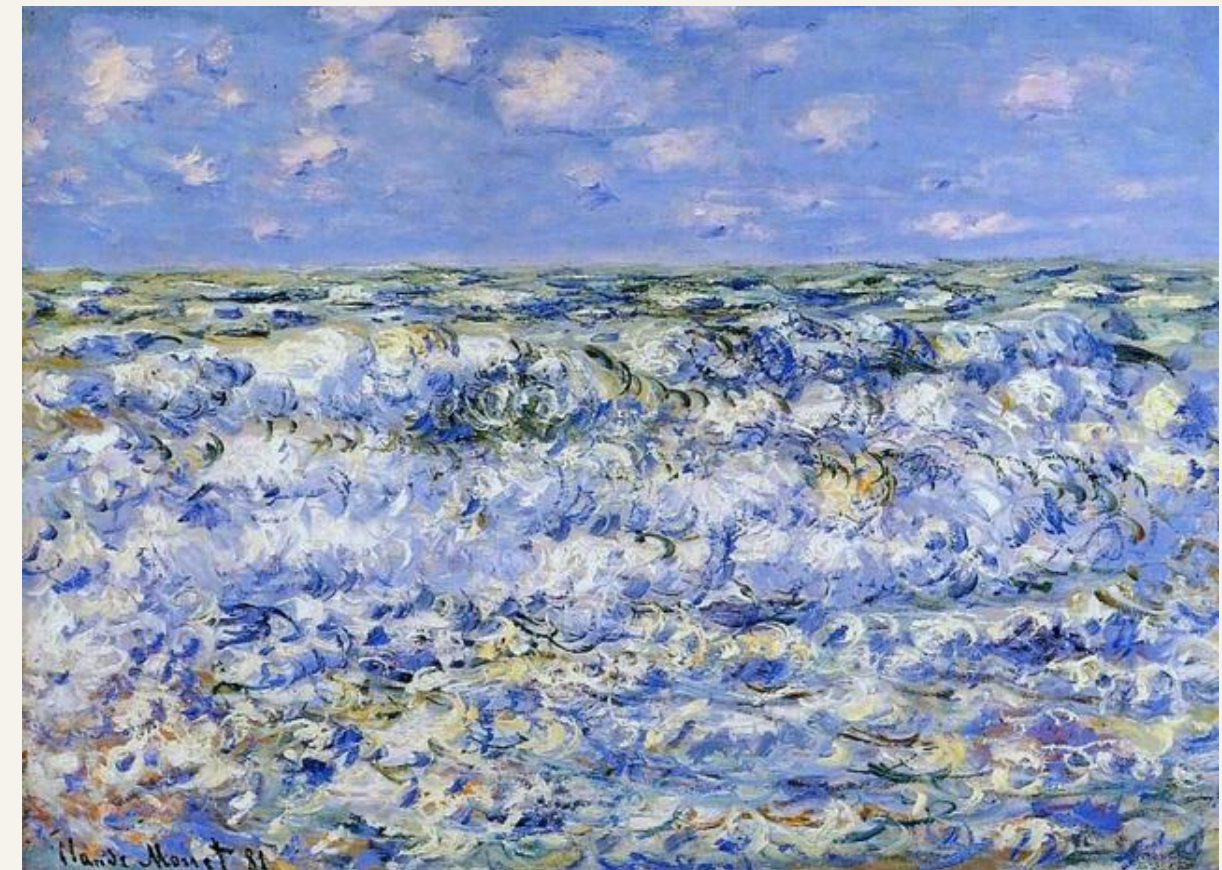
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Thomas Cole: Lake with Dead Trees/View on the Schoharie



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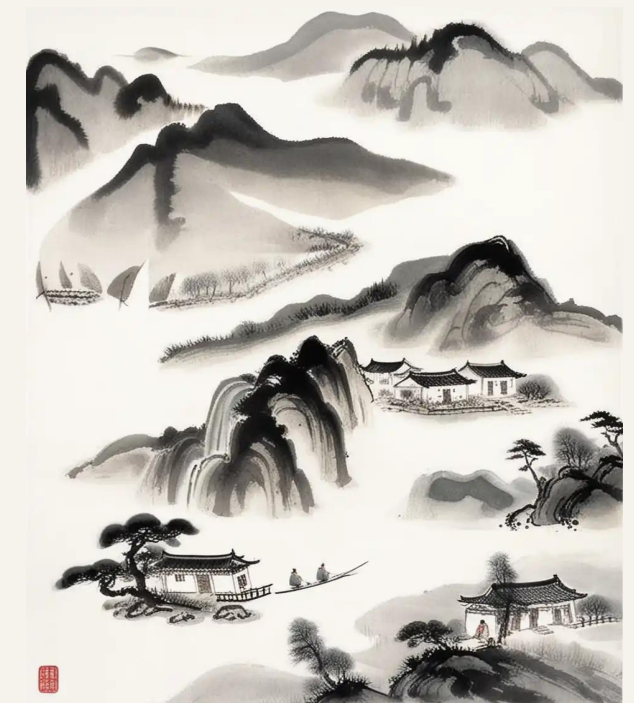
Claude Monet Wave Breaking



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谢稚柳 水阁松风





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# Relax time

<https://suno.com/create>



# Group Discussion&Share

## The Future of AI





# Some questions

What is AI?

AI is teaching machines to think and learn like humans.

What is Data Science?

Data science is using data to help make decisions, find patterns, and solve problems.

Why is it important?

Why do we put these two together?

Is data science math?

# AI in real life?

# AI in real life?

AI systems can analyze medical images like X-rays or MRIs much quicker than humans.

The AI system compares your watching habits with others who like similar shows and makes recommendations based on that.

AI helps businesses predict what might happen in the future by looking at data from the past.

# How could *AI* do that



# What's data

Data is everywhere: everything we do online, photos, videos, the things we type, etc., creates data.

***Structured data***: Data in rows and columns (e.g., a list of student names and their grades).

***Unstructured data***: Images, videos, texts (e.g., a collection of selfies).

Other resources of data?

# AI in real life?

AI systems can analyze medical images like X-rays or MRIs much quicker than humans.

## ***Classification***

The AI system compares your watching habits with others who like similar shows and makes recommendations based on that.

## ***Clustering***

AI helps businesses predict what might happen in the future by looking at data from the past.

## ***Regression***

# AI in real life?

Supervised Learning

Unsupervised Learning

# Hand-on activity

Student	Hours Studied	Attendance (%)	Completed Assignments (%)	Past Exam Scores (%)	Final Exam Score (%)
Alice	5	80	90	85	88
Bob	3	65	70	60	62
Carol	8	95	100	90	93
David	2	50	60	55	58
Eva	6	85	95	80	85
Frank	1	40	50	45	50
Grace	7	90	100	85	89
Helen	4	70	80	75	78

What if we wanted to predict a student's final exam score based on these other factors?



# Hand-on activity

Students who studied more hours tend to have higher final exam scores.

Students with higher attendance rates also tend to score higher on the final exam.

Students who complete more assignments usually perform better.

Students with higher past exam scores tend to do better on the final exam.

# Hand-on activity

Student	Hours Studied	Attendance (%)	Completed Assignments (%)	Past Exam Scores (%)	Final Exam Score (%)
Alice	5	80	90	85	88
Bob	3	65	70	60	62
Carol	8	95	100	90	93
David	2	50	60	55	58
Eva	6	85	95	80	85
Frank	1	40	50	45	50
Grace	7	90	100	85	89
Helen	4	70	80	75	78

What if we wanted to classify these students into groups based on whether they would pass or fail the exam?

# Hand-on activity

Students who studied more than 4 hours all passed (Alice, Carol, Eva, Grace), while students with fewer than 3 hours mostly failed (Bob, David, Frank).

Students with attendance above 70% tend to pass (Alice, Carol, Eva, Grace), while those below 60% are at risk of failing (David, Frank).

Students with assignment completion rates over 80% all passed (Alice, Carol, Eva, Grace), while those with completion rates below 60% are at risk of failing (David, Frank).



# Review

AI

Data

Regression&Classification&Clustering

Supervised&Unsupervised Learning

# Homework

Download Anaconda

Search for:Clustering



# AI

AlphaGo(Deepmind)

Deepfake



# Our Solution

## SmartFit Home Gym

**A fully-integrated, AI-powered home fitness system.**

## Value Proposition

**Affordable, accessible, and tailored fitness solutions from the comfort of home.**

## Key Features

**AI Personal Trainer: Real-time feedback and personalized workout plans.**

**Interactive Workouts: Gamified experience with VR and AR integration.**

**Community Platform: Connect with friends, join challenges, and track progress.**

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# The End

THANK YOU FOR LISTENING