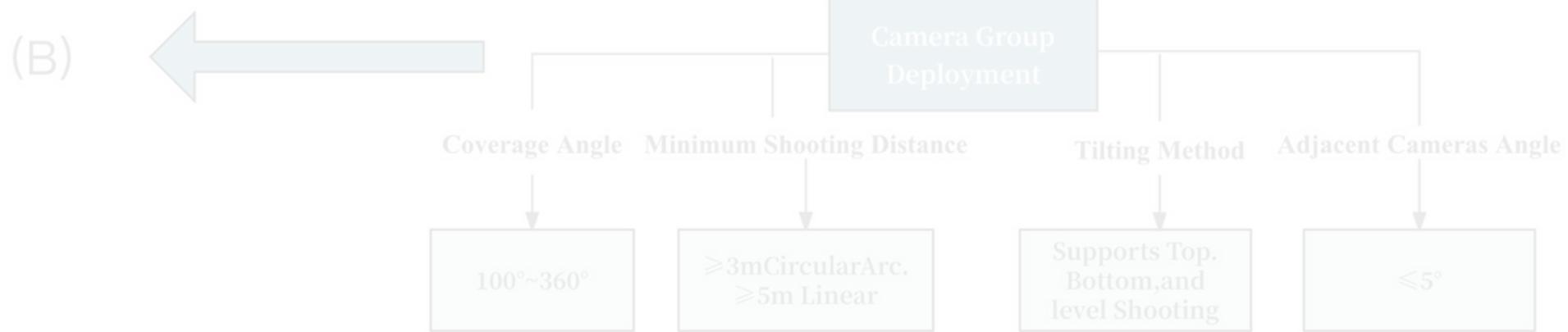


# FREE GENAI RESOURCES

**The Best Learning Resources To Become GenAI Expert at Zero Cost!**



# Python



You can find this course on YouTube.

## Harvard's Python Programming Course

Learn Python from Harvard University with David J. Malan! This beginner-friendly course covers:

- **Core Concepts** – Functions, variables, loops, conditionals, and exceptions.
- **Advanced Topics** – File handling, regular expressions, and OOP.
- **Practical Applications** – Debugging, unit testing, and libraries.
- **Web Development** – Build apps using Python, JavaScript, SQL, Django, and React.
- **Real-World Projects** – Work with APIs, interactive UIs, and cloud platforms.

Hands-on learning with real-world exercises. No prior experience required.  
Code in your browser or on your PC/Mac.

# DSA



You can find this course on YouTube.

## Complete A-Z DSA Course

This course covers all essential DSA topics, ensuring a solid understanding of problem-solving techniques. With 300+ in-depth videos, it also includes almost all LeetCode questions, helping you prepare efficiently for coding interviews.

### What You'll Get:

Comprehensive DSA coverage from basics to advanced topics

Detailed explanations of almost all LeetCode problems

A practice file with curated questions for hands-on learning

Learn and apply DSA concepts simultaneously with structured guidance

Perfect for beginners and experienced coders looking to master DSA systematically!

# SQL



You can find this course on YouTube.

## Complete SQL Course – Master Database Queries from Scratch

This 2.5-hour course takes you from SQL fundamentals to advanced query techniques. Whether you're a beginner or looking to refine your database skills, this course provides step-by-step guidance on SQL queries, table operations, functions, and more.

### What You'll Learn:

- SQL Basics: Introduction, Data Types, Keys & Constraints
- Database Operations: Create, Insert, Update, Delete Tables
- Querying Data: SELECT, WHERE Clause, Aggregate Functions
- Advanced Concepts: JOINS, Subqueries, Window Functions, CTE
- Hands-on Learning: Importing CSVs, Using CASE Statements
- 

By the end, you'll be confident in writing complex SQL queries for data analysis and database management.

# Statistics



You can find this course on YouTube.

## Complete Statistics For Data Science In 6 hours By Krish Naik

Master Statistics with this 5-hour comprehensive course, covering essential concepts for data analysis and decision-making.

- **Descriptive & Inferential Stats:** Data, population vs. sample, sampling.
- **Core Concept :** Variables, scales, mean, median, mode, variance.
- **Probability & Hypothesis :** Outliers, probability, permutations, p-values.
- **Statistical Tests :** Z-test, t-test, chi-square, Pearson & Spearman correlation.
- **Hands-on Python Applications:** Implement statistical techniques in Python.

Statistics is extremely important for data-driven insights, research, and business decisions. This course provides a solid foundation for anyone in data science, analytics, or research.

Credits: Krish Naik

# Linear Algebra



You can find this course on youtube

## Complete Linear Algebra Course – From Fundamentals to Advanced Concepts

This 6-hour course is designed to build a strong foundation in linear algebra, covering everything from basic vector operations to solving linear systems with matrices. Whether you're a student, researcher, or professional, this course provides a structured roadmap for mastering key mathematical concepts.

### What You'll Learn:

- Vectors & Operations: Geometric representation, dot product, special vectors, and real-world applications
- Norms & Distances: Euclidean distance, vector lengths, and properties
- Linear Systems & Matrices: Gaussian elimination, augmented matrices, and row echelon forms
- Advanced Topics: Cauchy-Schwarz inequality, matrix operations, and solving complex systems

By the end of the course, you'll gain a deep understanding of linear algebra concepts crucial for machine learning, computer science, and data analysis.

Credit:freeCodeCamp.org

# Discrete Mathematics



## Discrete Mathematics



Instructor: [Dominik Scheder](#)

Enroll for Free  
Starts Mar 14

You can find this course on **coursera**

### Discrete Mathematics for Computer Science

Gain a strong mathematical foundation for computer science with essential topics like sets, functions, relations, combinatorics, graph theory, and network flow.

#### Key Topics:

- Mathematical Objects: Sets, functions, and relations.
- Combinatorics: Counting techniques and probability.
- Graph Theory: Properties, applications, and algorithms.
- Network Flow & Matchings: Optimization techniques.
- Mathematical Rigor: Understanding and constructing formal proofs.

Balancing rigor with intuition, this course is ideal for CS students, competitive programmers, and researchers.

# Machine Learning



You can find this course on YouTube.

## Machine Learning Course for Beginners

Learn Machine Learning from scratch in this 10-hour beginner-friendly course on YouTube.

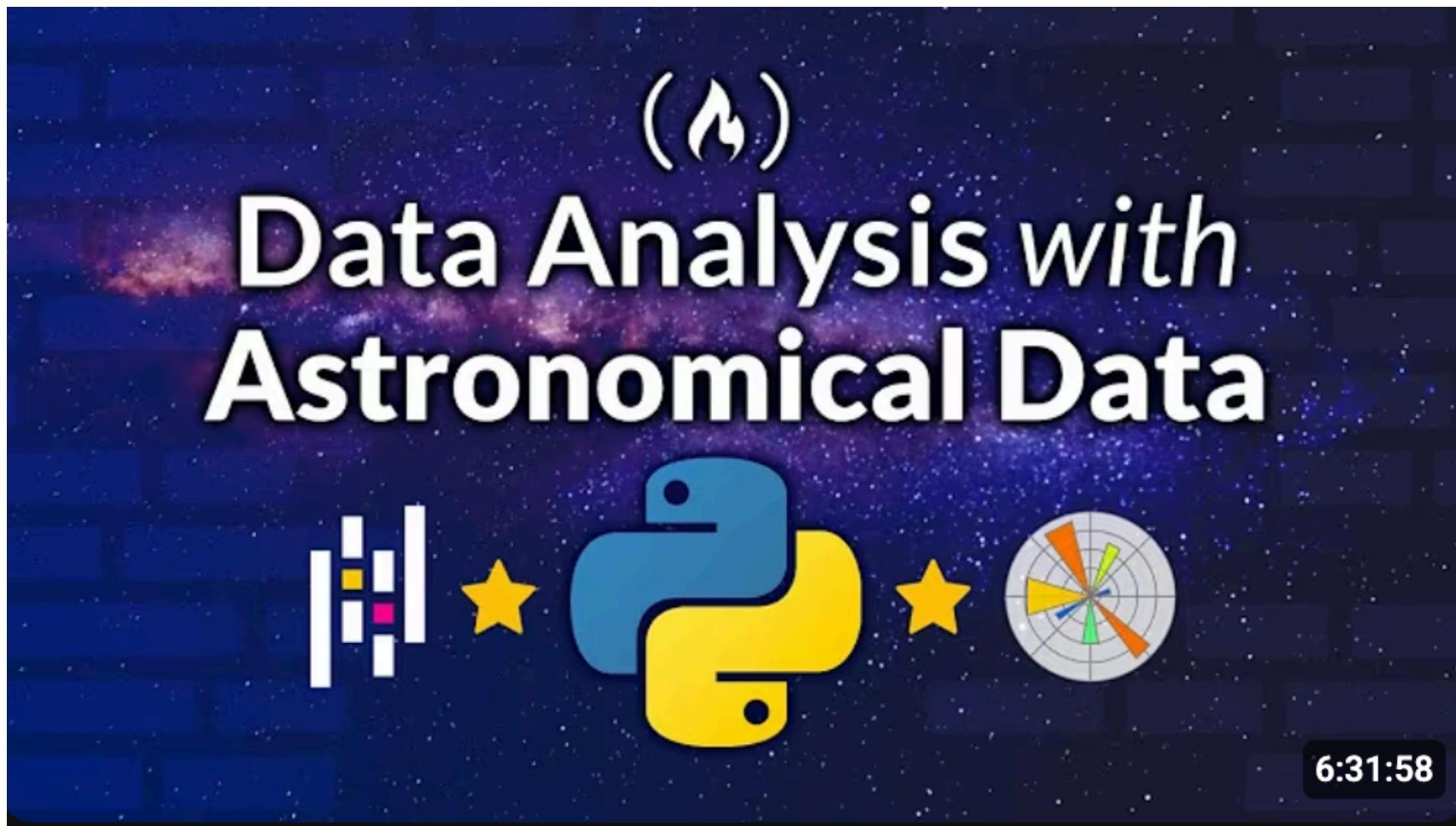
It covers:

- **ML Fundamentals:** Supervised vs. unsupervised learning, key concepts.
- **Regression & SVM:** Linear/logistic regression, regularization, support vector machines.
- **Ensemble Methods:** Decision trees, boosting, stacking, and PCA.
- **Clustering & Unsupervised Learning:** K-Means, hierarchical clustering.
- **Real-World Projects:** House price prediction, stock price predictor, heart failure analysis, and spam detection.

Includes hands-on projects and exercises.

Credits:freeCodeCamp.org

# Data Analysis & Visualization



You can find this course on YouTube.

## Data Analysis and Visualization Course

- Data Visualization: Learn to analyze tabular data using bar graphs, box plots, and scatter plots with Matplotlib and Seaborn.
- Image Processing: Understand pixels, work with FITS files, and apply denoising, feature extraction, and scaling techniques.
- Hands-on Projects: Create HR diagrams, visualize astronomical images, and enhance features with skimage filters.

Perfect for beginners and intermediate learners seeking practical experience in data visualization and image analysis.

# Deep Learning



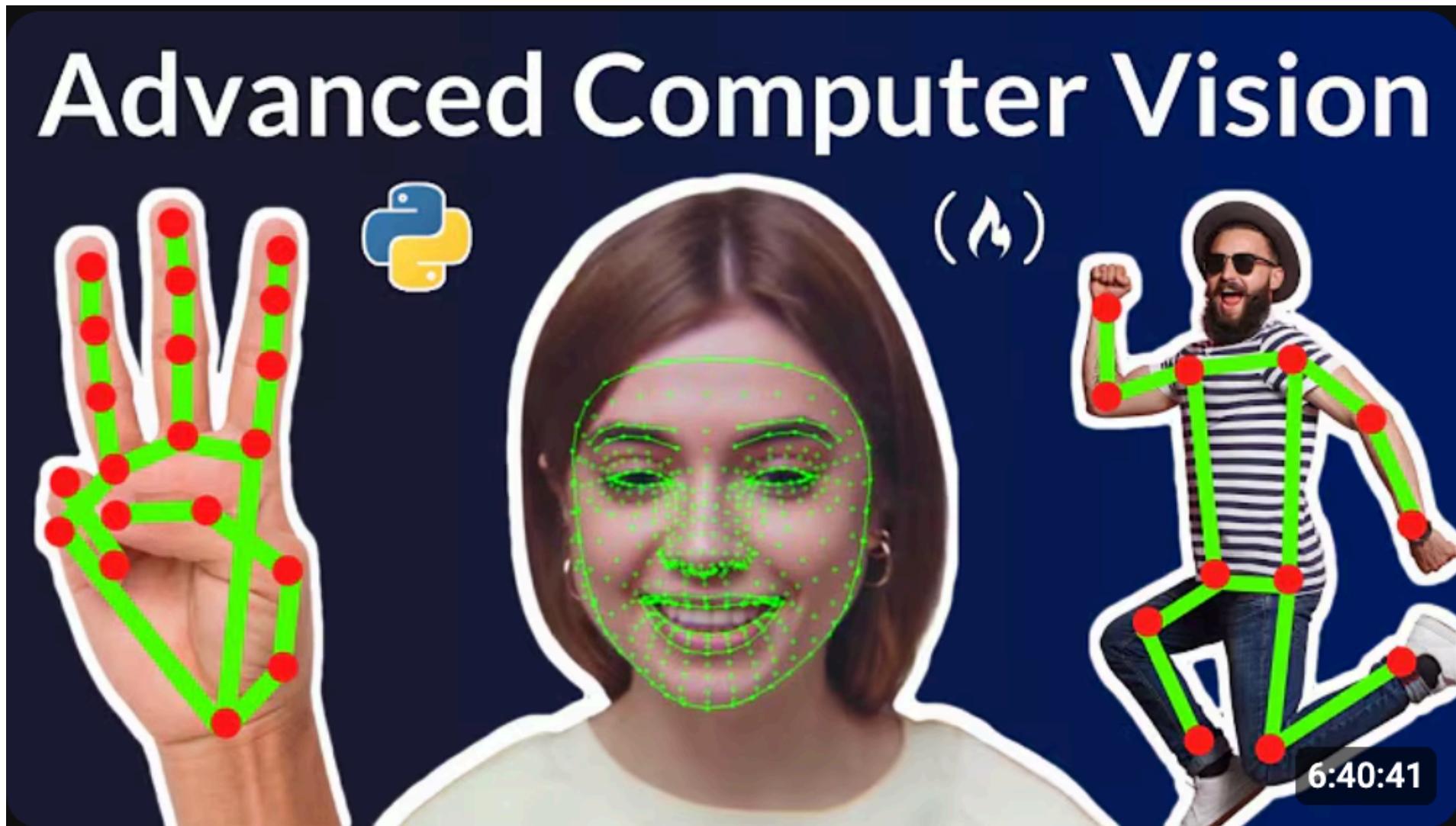
You can find this course on YouTube.

Learn Deep Learning in this 6-hour beginner-friendly course on YouTube. It covers:

- **AI vs ML vs DL:** Understanding the differences and deep learning's rise.
- **Neural Networks:** Perceptron, weights, bias, forward/backward propagation.
- **Key Challenges:** Vanishing gradients, activation & loss functions, optimizers.
- **Deep Learning Models:** ANN, CNN, black box vs. white box models.
- **Hands-on Projects:** Implement artificial and convolutional neural networks.

Includes practical coding exercises. Watch now and start mastering deep learning today!

# Computer Vision



You can find this course on YouTube.

## Advanced Computer Vision with Python

Master Computer Vision with AI-Powered Hand, Face & Pose Tracking

This 7-hour course takes you from the basics to advanced applications of real-time hand tracking, pose estimation, face detection, and face mesh modeling. You'll learn to build AI-driven projects like a gesture-controlled volume adjuster, a virtual painter, and an AI-powered personal trainer.

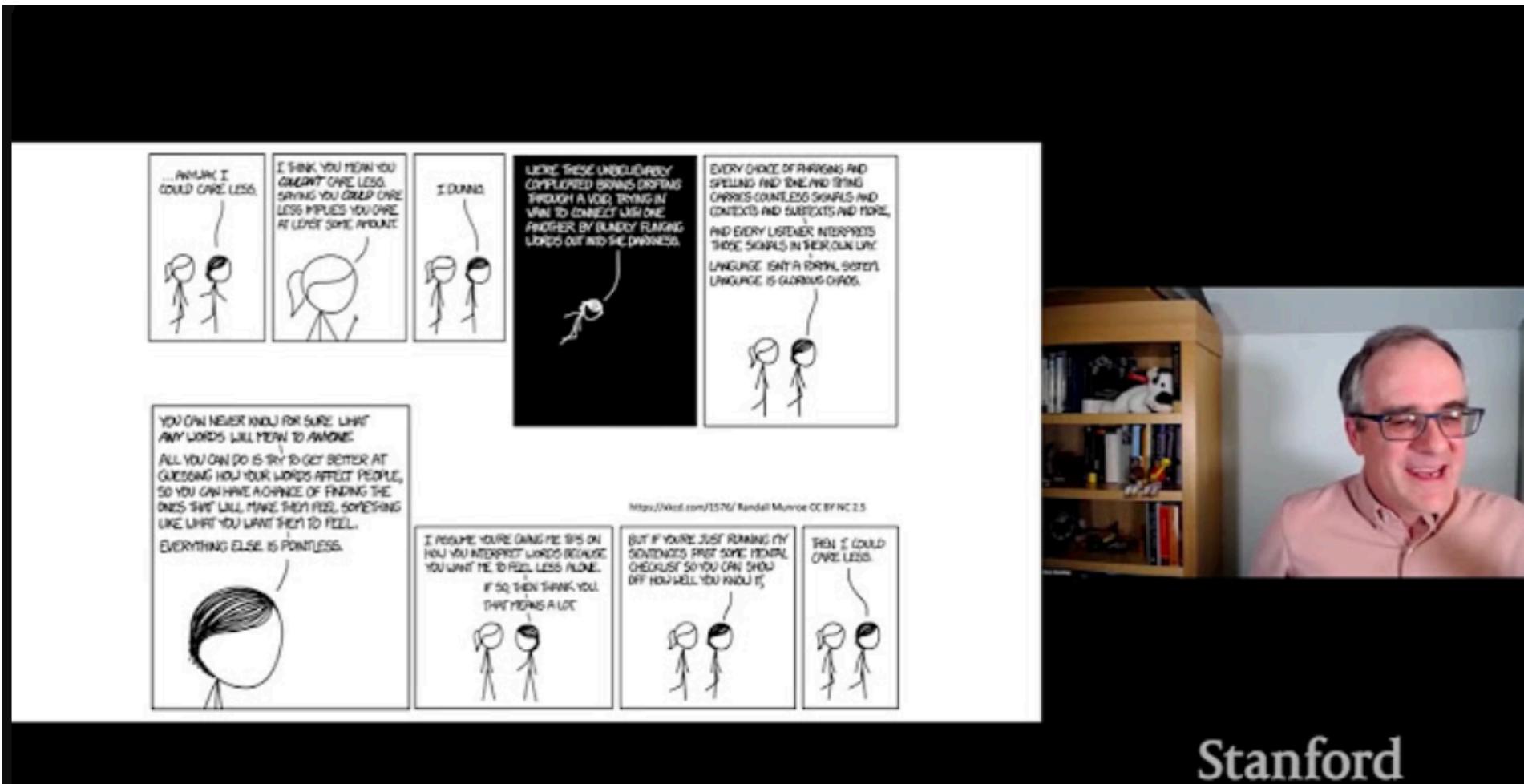
### What You'll Learn:

- Hand, face, and pose tracking fundamentals
- Implementing real-time AI modules for detection and estimation
- Building interactive AI projects using computer vision
- Practical applications like virtual mouse and finger counting

Includes: Hands-on projects and real-world applications to solidify your learning.

Credits:freeCodeCamp.org

# NLP



Stanford

You can find this course on YouTube.

## Stanford CS224N: NLP with Deep Learning

Stanford's CS224N: Natural Language Processing with Deep Learning is one of the best courses for mastering NLP. It covers everything from foundational concepts like word vectors and neural networks to advanced topics like transformers, pretraining, and multimodal deep learning.

### Why Take This Course?

Covers both theoretical and practical aspects of NLP

Taught by top Stanford professors

Includes hands-on tutorials on Python, PyTorch, and Hugging Face

Explores cutting-edge topics like reinforcement learning, prompting, and model interpretability

If you're serious about becoming a GenAI expert, this course is a must! Would you like me to summarize it further or add a comparison with other NLP courses? 😊

Credit:Stanford youtube

# MLOps



You can find this course on YouTube.

## MLOps Mastery

This course takes you through the complete MLOps lifecycle, from data ingestion to model deployment, using modern tools like ZenML, MLflow, and other MLOps libraries.

### What You'll Learn:

**MLOps Fundamentals:** Learn the principles of MLOps and its importance.

**ZenML & Experiment Tracking:** Set up pipelines and track experiments efficiently.

**End-to-End Project:** Work on a Customer Satisfaction Prediction project using Olist dataset.

**Model Development & Evaluation:** Clean data, train models, and evaluate performance.

**Deployment & Monitoring:** Build a Streamlit app and deploy models seamlessly.

This course is perfect for data scientists, ML engineers, and AI enthusiasts looking to streamline machine learning workflows for production-ready applications.

Credit:freeCodeCamp.org

# Reinforcement Learning



You can find this course on YouTube.

## Reinforcement Learning Full Tutorial

This course covers key reinforcement learning concepts, including Q-learning, SARSA, deep Q-learning, and policy gradient methods using TensorFlow and PyTorch.

### What You'll Learn:

- Deep Q-Learning & Policy Gradients for modern RL applications
- Algorithm Implementation with step-by-step coding
- Practical Applications in OpenAI Gym environments like Lunar Lander and Space Invaders
- Core RL Concepts such as Markov Decision Processes and the Explore-Exploit Dilemma
- Building Custom RL Environments

Ideal for AI enthusiasts and ML practitioners seeking a strong RL foundation

Credit:freeCodeCamp.org

# Large Language Model



You can find this course on youtube

## Build Your Own Large Language Model from Scratch

This course covers data handling, tokenization, embeddings, and PyTorch training, providing a deep dive into transformer architectures, self-attention, and GPT models to help you build and fine-tune your own LLM.

### Includes:

Practical coding with Jupyter Notebook and PyTorch

Training on real-world datasets like OpenWebText

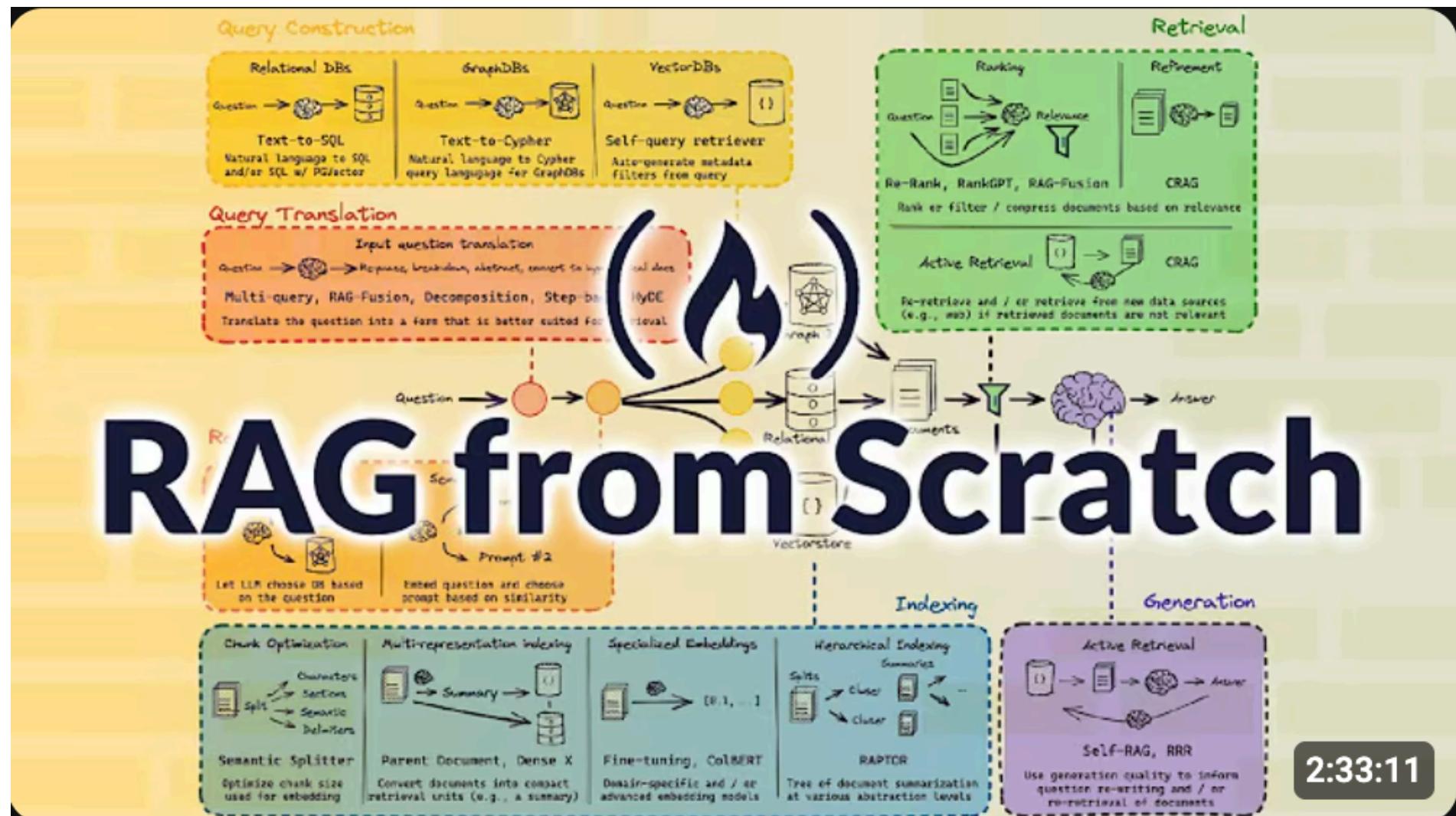
Hands-on implementation of tokenization, embeddings, and transformers

Insights into model optimization, GPU acceleration, and hyperparameter tuning

Perfect for anyone looking to gain a solid understanding of how LLMs work under the hood!

Credit:freeCodeCamp.org

# RAG



You can find this course on youtube

## Learn RAG from Scratch

This course provides a comprehensive introduction to Retrieval-Augmented Generation (RAG), covering indexing, retrieval, query translation techniques, and advanced concepts like Adaptive RAG and CRAG. You'll explore multi-query approaches, routing, and indexing methods such as RAPTOR and ColBERT, gaining practical skills to build efficient RAG-based applications.

## What You'll Learn:

- Fundamentals of RAG and its workflow
- Query translation techniques (Fusion, Decomposition, HyDE, Step Back)
- Advanced indexing methods (Multi-Representation, ColBERT, RAPTOR)
- Adaptive RAG and its applications
- Future trends in RAG
- 

Includes: 2 hours 30 minutes of content with hands-on learning.

Credit:freeCodeCamp.org

# GEN AI



You can find this course on youtube

## GEN AI ESSENTIALS

This comprehensive course provides a hands-on journey through AI, machine learning, and generative AI, covering both fundamentals and advanced techniques.

### What You'll Learn:

- Generative AI: LLMs, AI-powered assistants, and prompt engineering.
- Development & Deployment: Workbenches, LLM dev tools, and app prototyping.
- Optimization & Customization: Fine-tuning, model size reduction, and retrieval-augmented generation (RAG).
- Infrastructure & Serving: Containers, AI delivery platforms, and GenAI hardware.

Perfect for developers, researchers, and AI enthusiasts, this course balances theory with practical implementation to help you build cutting-edge AI applications.

# AI Agents

## Learn AI Agents

This course is part of [AI Engineering Specialization](#)



Instructor: [Bob Ziroll](#)

[Enroll for Free](#)

Starts Mar 14

**7,092** already enrolled

**You can find this course on coursera**

### ReAct Prompting: Mastering AI Agent Interactions

- Core Concept: Learn ReAct prompting to design AI agents that respond dynamically and contextually.
- Prompt Engineering: Understand how to craft effective prompts using principles of psychology, linguistics, and data science.
- Hands-On Learning: Implement ReAct loops for continuous, context-aware AI interactions.
- Practical Applications: Build AI systems that are both responsive and proactive.
- Ideal For: Anyone looking to enhance user experience and create more intuitive AI agents.



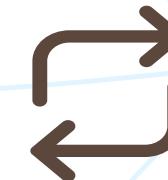
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