DPCA
Delhi Professional Courses Academy

ARTIFICIAL INTELLIGENCE

Intelligent System

Delhi Professional Courses academy

88825-05290

www.dpca.info

Curriculum of Certificate in Artificial Intelligence

Duration: 6 Months

Core & Advanced Python:

- Introduction to Python
- Installation of Python and Ipython
- Notebook (Jupyter Notebook)
- Python Objects
- Number & Booleans
- Strings
- Mutability of objects
- Operators
- Operators Precedence
- Conditions(If else elif)
- Loops(While & for)
- Break and Continue statements
- Range functions
- String object basics
- String methods
- Splitting and Joining Strings
- String format functions
- List object basics
- list methods

- List as stack and Queues
- List comprehensions
- Tuples, Sets, Bool
- Dictionary Object basics
- Dictionary Object methods
- Dictionary View Objects.
- Functions basics
- Parameter passing
- Iterators, Generator functions
- Lambda functions
- Map, Reduce, filter functions
- OOPS basic concepts
- Creating classes and Objects
- Inheritance
- Working with files
- Reading and writing files
- Buffered read and write
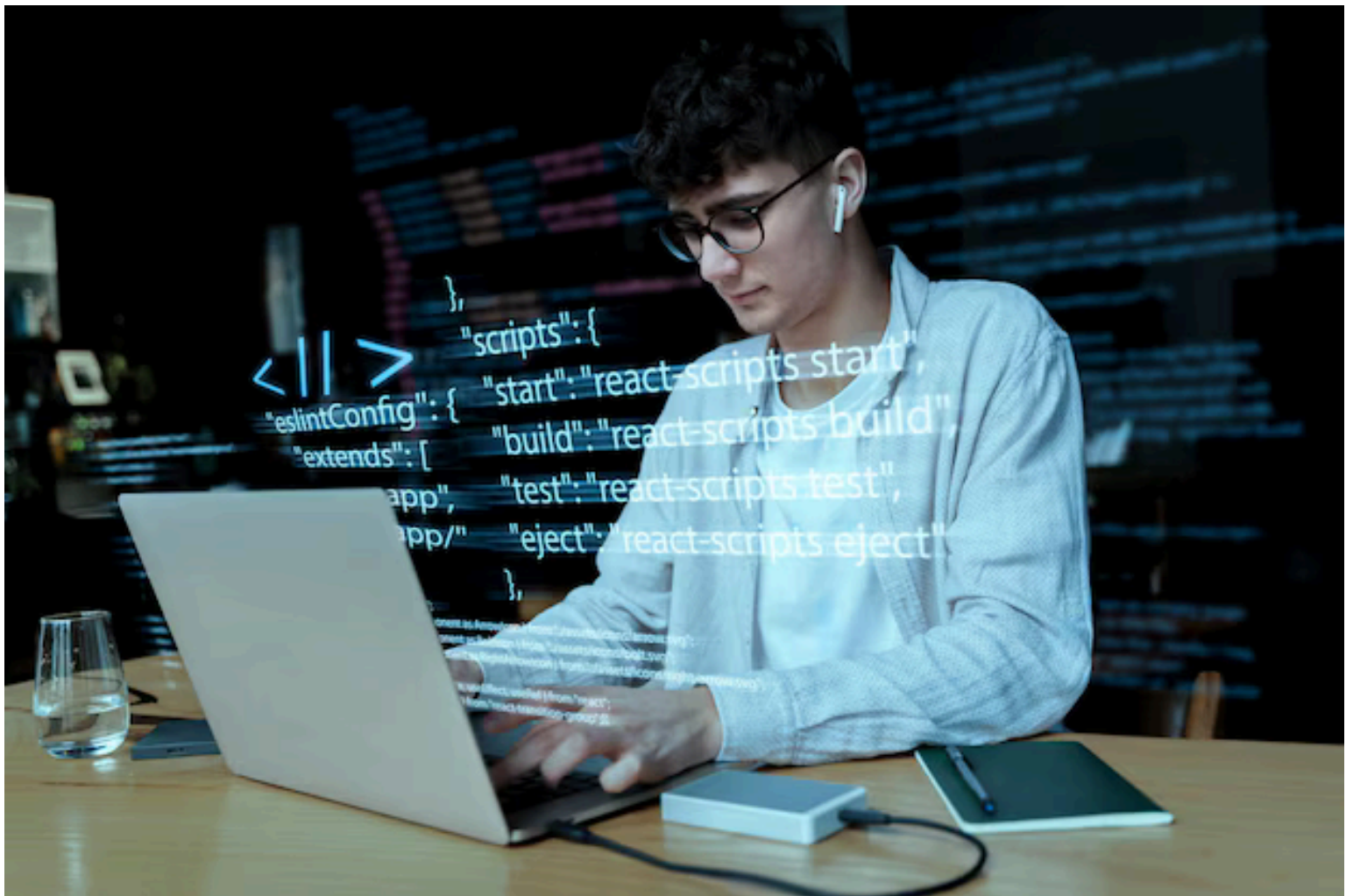- Other File Methods
- Using Standard Modul

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Stastistics :

- Descriptive Stascs
- Sample vs Population statistics
- Random Variables
- Probability distribution function
- Expected value
- Binomial Distribution
- Normal Distributions
- z-score
- Central limit Theoram
- Hypothesis testing
- Z-Stats vs T-stats
- Type 1 type 2 error
- confidence interval
- Chi-Square test
- ANOVA test
- F-stats

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Data Analysis:

- Numpy variable
- Numpy manipulation
- Scipy
- Pandas intro
- Descriptive analysis
- Pandas Input-output
- Pandas manipulation
- Pandas groupby
- Matplotlib intro
- Bar charts histogram
- Scaer plot
- Stack charts
- Legend title Style
- Data Cleaning walkthrough Combining multiple datasets to get a single and clean dataset.

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Machine Learning:

- Introduction
- Supervised
- Unsupervised Reinforcement
- Train & Test
- Validation Split
- Performance
- Overfitting & underfitting
- Linear Regression
- Assumptions
- R square adjusted R square
- Intro to Scikit learn
- Training methodology Logiscs regression
- Precision-Recall
- ROC curve
- F-Score
- Decision Tree
- Cross Validation Bias vs Variance
- Ensemble approach

- Bagging Boosting
- Randon Forest
- Variable Importance
- XGBoost
- K Nearest Neighbor
- Lazy learners
- Curse of Dimensionality
- KNN Issues
- Text Analytics
- Tokenizing
- Chunking
- Document term Matrix
- TFIDF
- Sentiment analysis hands-on
- Hierarchical clustering
- K-Means
- Performance measurement
- Principal Component analysis
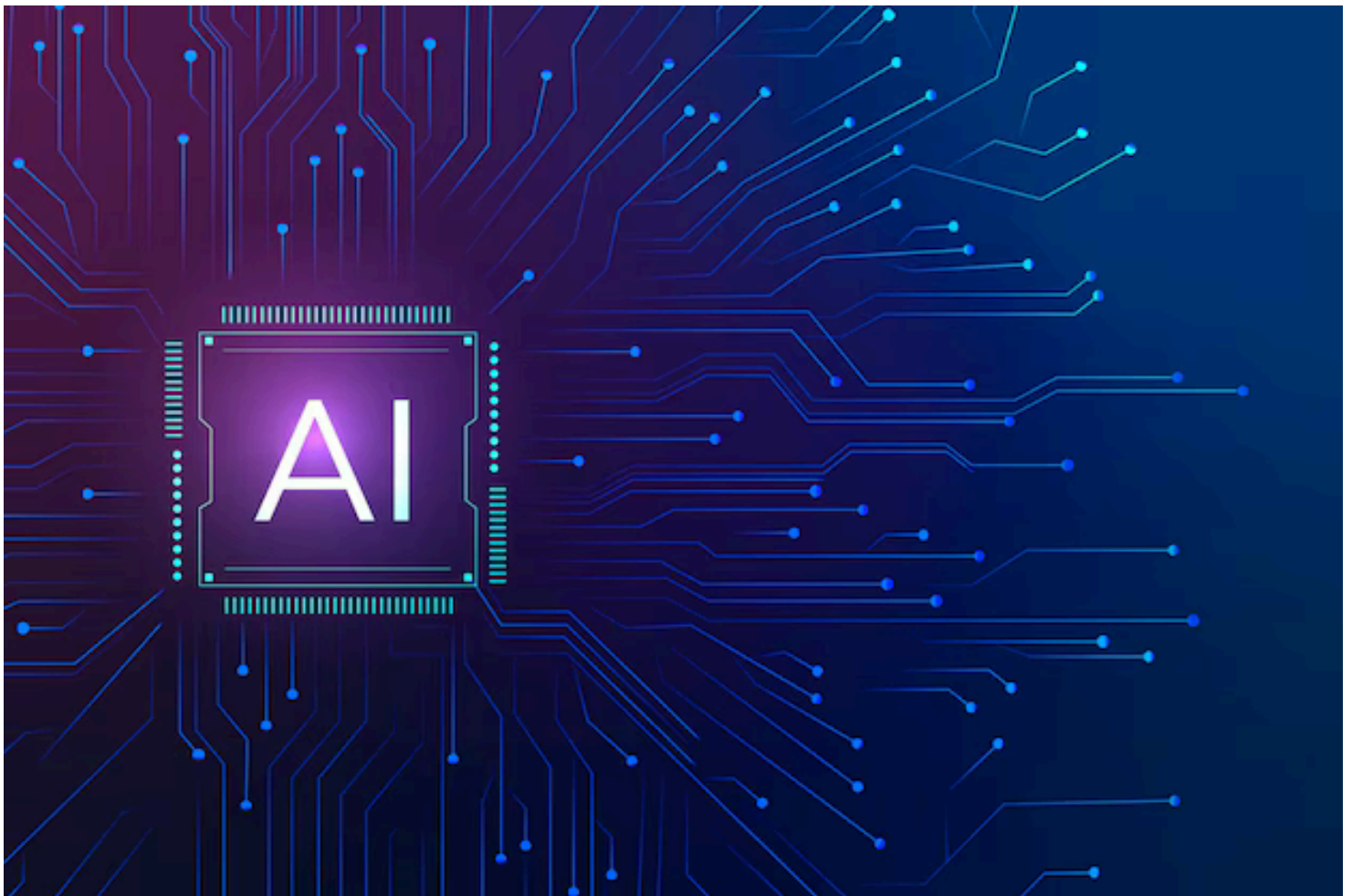- Dimesionality reducon Average

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Deep Learning:

- iBasic of Neural Network
- Type of NN
- Cost Function
- Gradient descent
- Linear Algebra basics
- Vanilla implementation of Neural
- Network in python
- Tensorflow basics
- Hands-on Simple NN with Tensorflow
- Word Embedding
- CBOW & Skip-gram
- Word Relations
- Convolutional Neural Network
- Maxpool
- Window padding
- Image classification using
- Convolutional Neural Network
- Recurrent Neural Network

- Long Short Term Memory (LSTM) architecture
- Building Story Writer using character level RNN
- Sentiment Analysis Hands-on
- Seq-to-Seq model
- Encoder-Decoder
- GAN
- Generative Model Using GAN
- Semi-supervised learning using GAN

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Artificial Intelligence (Al):

- Why do we need to study Al?
- Applications of Al
- Branches of Al
- Defining intelligence using the Turing Test
- Making machines think like humans
- Building rational agents
- General Problem Solver
- Building an intelligent agent
- Understanding deep learning
- Understanding neural networks with TensorFlow
- Deep dive understanding neural networks with TensorFlow
- master deep networks
- Convolutional neural network
- recurrent neural networks rbm and autoencoder Keras

- Define Keras
- Sequential Composition
- Functional Composition
- Predefined Neural Network Layers
- What is Batch Normalization
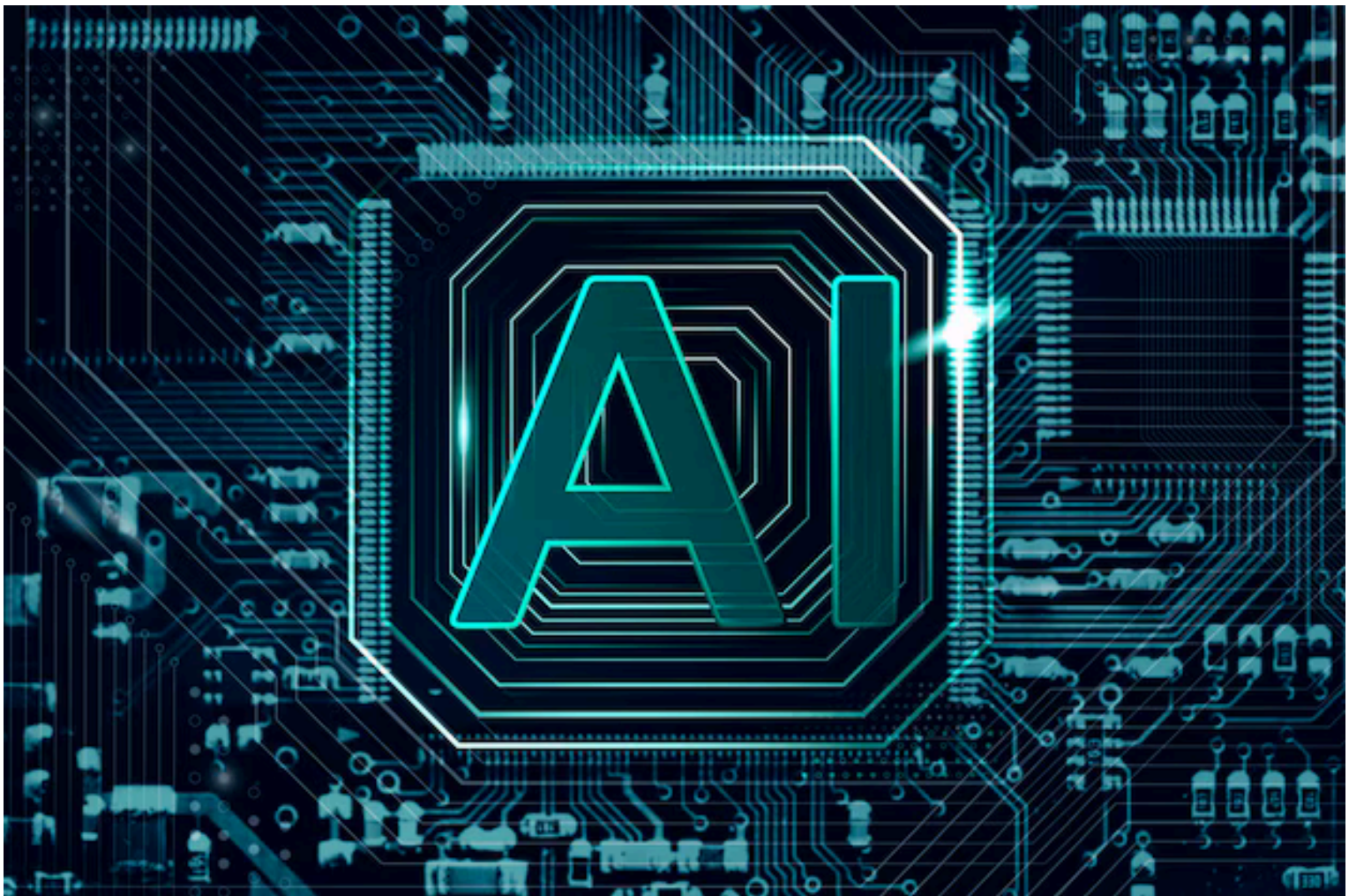- Customizing the Training Process
- Using TensorBoard with Kera

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TFLearn

- Define Tflearn
- Composing Models in Tflearn
- Sequential Composition

Functional Composion Hands-On Practice

Projects:

1. Chatbot Applications

Introduction to Sixth

Sense Technology:

- v/ What is sixth sense?
- v/ Why choose sixth sense technology?

Applicaons:

- Predicting future, Chat Bots, Self-Driving
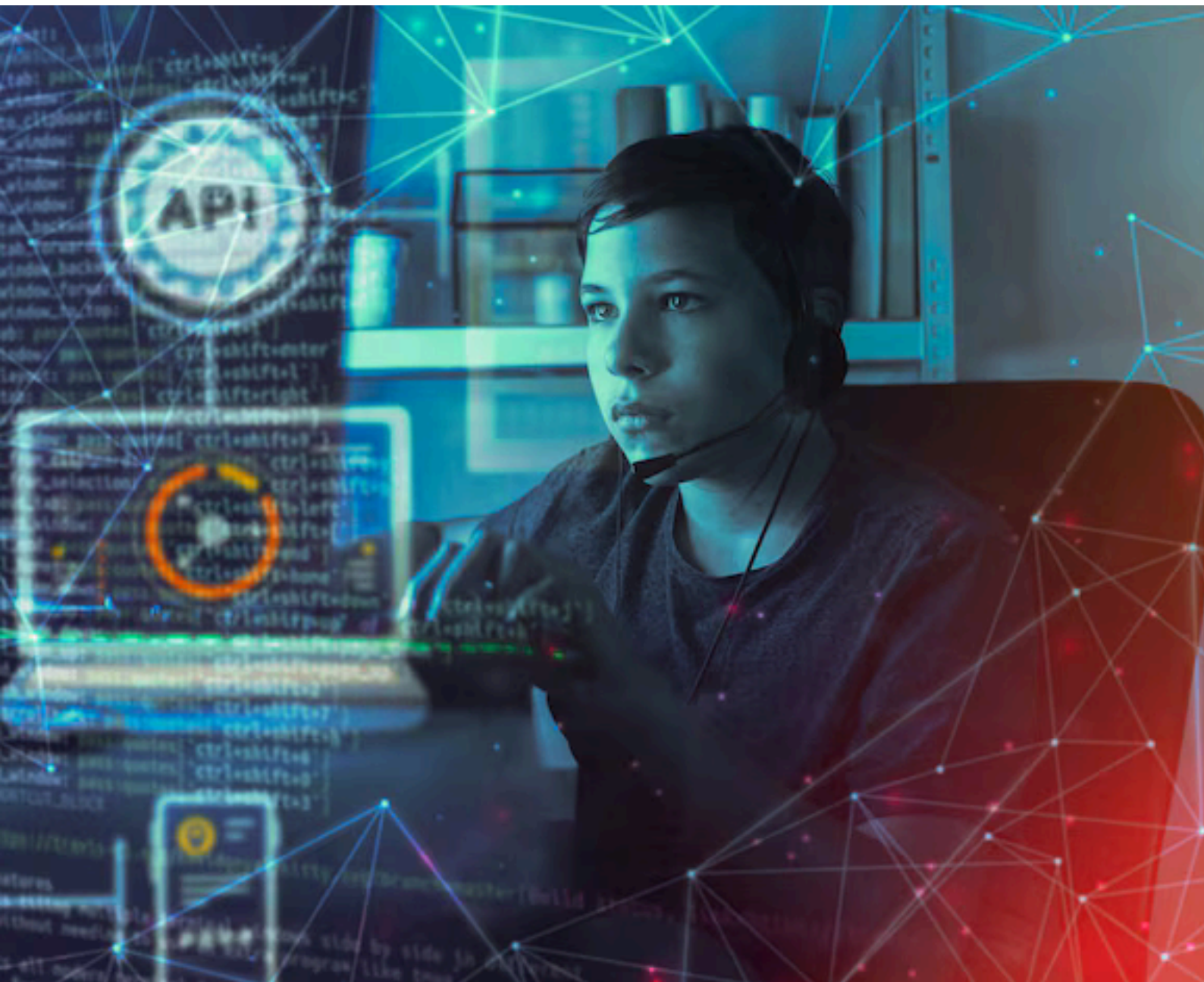- Cars, Google Al Eye Doctor.
- Al Music Composer.
- Al Dream Machine.

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Flipkart	Asian Paint	Bajaj	Hero	IBM
Amazon	Kama	Swastik	Swiggy	Patanjali
Pepsico	Tata	Cadbury	Mtr	Nestle
Henkel	Zomato	Tyson	Loreal	JBS

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THANKS!

Do you have any questions?