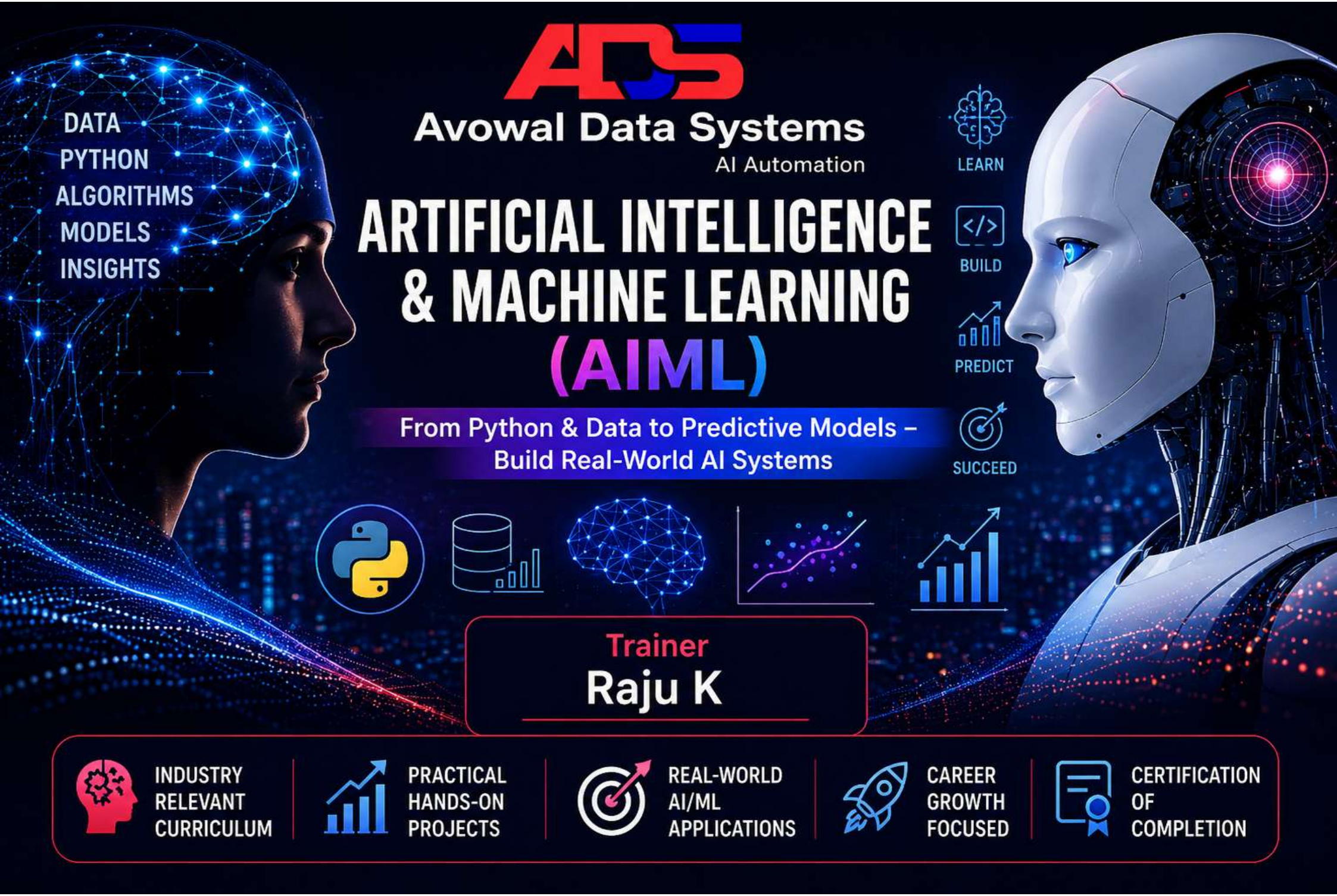

ADS
Avowal Data Systems
AI Automation
DATA
PYTHON
ALGORITHMS
MODELS
INSIGHTS
LEARN
BUILD
PREDICT
SUCCEED
ARTIFICIAL INTELLIGENCE
& MACHINE LEARNING
(AIML)
From Python & Data to Predictive Models –
Build Real-World AI Systems
Trainer
Raju K
INDUSTRY RELEVANT CURRICULUM
PRACTICAL HANDS-ON PROJECTS
REAL-WORLD AI/ML APPLICATIONS
CAREER GROWTH FOCUSED
CERTIFICATION OF COMPLETION

ABOUT THE TRAINER

Raju Kolikapogu

Technical Architect

With over 20 years of experience, I specialize in architecting projects end-to-end and mentoring teams to success. I am also an expert in providing training for both individuals and corporate teams.

MY SKILL SET:

AI Automation:

Master n8n, Make.com, and Generative AI tools–langchain, RAG to streamline your workflows and boost efficiency.

Chatbots:

Master the art of building advanced chatbots w/o voice using VAPI, Voiceflow, BotPress, and Dialogflow to create seamless and engaging user interactions.

Data Analytics:

Harness the power of AI, Machine Learning, and Python to extract meaningful insights from data and drive business decisions, leveraging tools like Airflow, Spark, and Kubeflow for large-scale data handling.

20+ Years of Experience

Trained Individuals & Corporate Teams

MODULE 1

Data & Tools

1

Python Core

- Variables, loops, and conditional (if/else) logic

2

Python Collections

- Working with Lists, Tuples, Sets, and Dictionaries

3

Intermediate Python

- Functions, error handling (try/except), and runtime tracking

4

NumPy Matrices

- Vector computing and faster array manipulations

5

Pandas DataFrames

- Loading tabular data (CSV/Excel) and handling empty cells

6

SQL Basics

- Relational databases, table structures, and basic filtering

7

SQL Aggregations

- Grouping data records and joining tables together

8

Database Operations

- Modifying tables (DML/DDL) and NoSQL paradigm overview

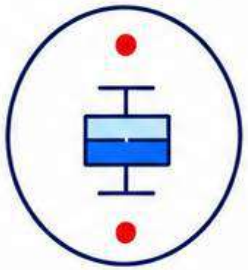
MODULE 2

Visualizing Data

1 Basic Plotting

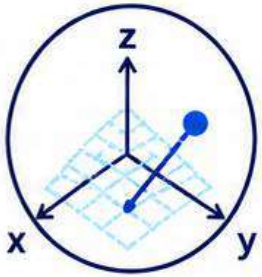
- 2D Scatter plots
- Histograms
- Line charts

2 Outliers & Spreads



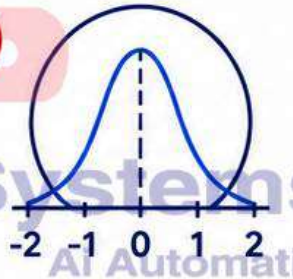
- Box-plots
- Mean, Median
- Percentiles
- Median Absolute Deviation (MAD)

3 Data Geometry



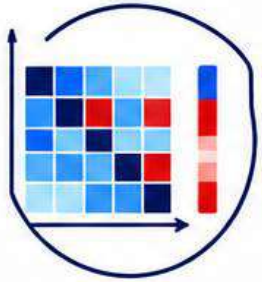
- Visualizing records as coordinates/vectors in space

4 Distributions



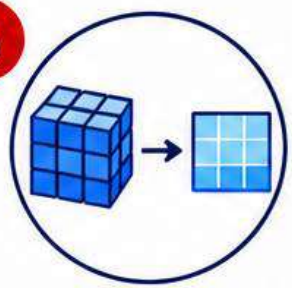
- The Gaussian Bell Curve
- Standardization
- Z-Score Scaling

5 Correlation



- Pearson Correlation Coefficient
- Positive vs Negative Correlation
- Feature Relationships

6 Dimension Reduction



- PCA geometric intuition
- Column compression
- Feature space simplification
- Variance preservation

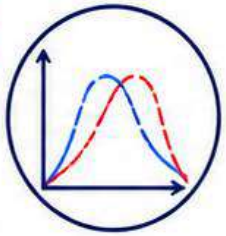
MODULE 3

Classification

1 K-Nearest Neighbors

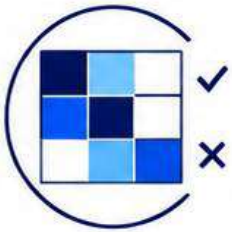
- KNN classifier intuition and Train/Test data splitting

2 Model Tuning



- Overfitting vs. Underfitting and K-fold cross-validation

3 Metrics Evaluation

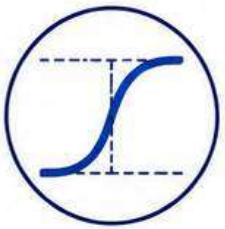


- Confusion Matrix, Precision, Recall, and F1-Score

4 Probability Models

- Naive Bayes algorithm and processing text counts

5 Logistic Regression

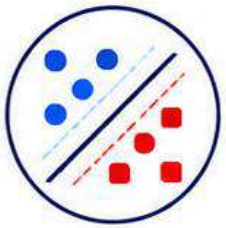


- Sigmoid squashing functions and finding model weights

6 Hyperparameter Tuning

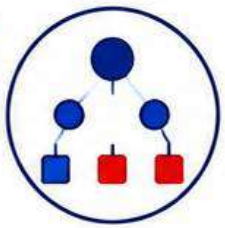
- Automating setting searches using Grid Search & Random Search

7 Support Vector Machines



- SVM classification margins and linear decision boundaries

8 Decision Trees

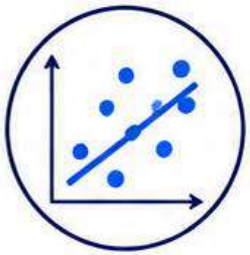


- Flowchart choices using Gini Impurity and Information Gain

MODULE 4

Regression & Ensembles

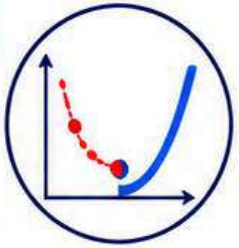
1



Linear Regression

- Line of best fit, slope coefficients, and intercept math

2



Optimization

- Gradient Descent mechanics and adjusting weights

3

Regression Metrics

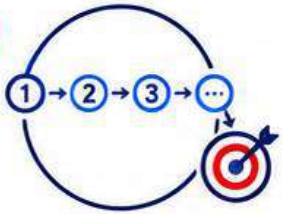
- Mean Squared Error (MSE) and R-Squared (R^2) evaluation

4

Random Forests

- Ensemble models, Bagging intuition, and tree voting

5



Boosting Models

- Sequential mistake-learning using XGBoost and AdaBoost

6

Feature Preparation

- One-Hot Encoding, missing value imputation, and transforms

7

Clustering

- Unsupervised grouping via K-Means without existing labels

8

Capstone Project

- End-to-end implementation of a classical ML pipeline

Avowal Data Systems

AI Automation

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