



AI/ML JOURNEY *With* PHITRON

FALL 2025 / BATCH 01



AI/ML Expert With Phitron Batch 01

Become an AI/ML Expert with Phitron

Instructors



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About this batch

Master Machine Learning, Deep Learning, Image Processing, Object Detection, and Natural Language Processing. Work under top university faculties and industry experts to build a standout thesis and publish a research paper, boosting your profile for higher studies. and develop projects ready to showcase on your resume to land your dream job.

What you'll learn

Month 1

Month 2

Month 3

Month 4

Month 5

Python, Statistics, Math For Machine Learning

Python Foundations & Workflow

- ✓ Install Python (Windows/Mac/Linux)
- ✓ Set up Virtual Environment (venv)
- ✓ Work with VS Code + Jupyter Notebooks
- ✓ Python data types & variables
- ✓ Control flow (if/else, loops)
- ✓ List & dictionary comprehensions
- ✓ Functions, *args & **kwargs, type hints
- ✓ File handling (CSV read/write, Pathlib)
- ✓ Errors & exception handling
- ✓ Mini-project: CSV cleaner skeleton
- ✓ Logging basics (debugging setup)
- ✓ Simple unit test with pytest

NumPy, Pandas & Visualization

- ✓ NumPy arrays & data types
- ✓ Indexing, slicing & broadcasting
- ✓ Vectorization & performance tips
- ✓ Linear algebra quick tour
- ✓ Pandas DataFrame creation & indexing
- ✓ GroupBy, aggregate, apply & transform
- ✓ Merge, join, melt & pivot
- ✓ Handling dates, times & missing data
- ✓ Matplotlib basics (plots, subplots, styling)
- ✓ Seaborn for quick EDA

Mini-lab: clean + join + plot dataset

Week assignment notebook submission

Data Cleaning, Feature Prep & EDA

Data quality checklist

Missing data patterns (MCAR, MAR, MNAR)

Simple & group-wise imputation

Outlier detection (IQR, z-score)

Feature type fixing (dates, strings, categoricals)

Scaling & normalization

Encoding categoricals (one-hot, ordinal)

Train-test-validation splits

Question-driven EDA strategy

Correlation heatmaps & caveats

EDA report template & reproducibility

Mini-project: full cleaning + EDA repo

Linear Algebra, Probability & Statistics

Vectors, matrices, tensors basics

Matrix operations, norms & distances

Projections & least squares

Eigenvalues, SVD & PCA intuition

Random variables, PMF, PDF, CDF

Common probability distributions

Conditional probability & Bayes rule

Sampling, CLT intuition

Hypothesis testing (t-test, chi-square)

Correlation vs causation

Gradient descent math & logistic regression



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