AIML (ARTIFICIAL INTELLIGENCE / MACHINE LEARNING)

• About the Course:

- In this course, the participants will learn deep artificial neural networks (ANN) basics to its different branches convolutional neural network (CNN) for computer vision, LSTM (Long short-term-memory) for NLP (natural language processing) to mathematics (linear algebra & calculus) and Python (basic to advanced) to implement deep neural network libraries like TensorFlow, PyTorch and API (Application programming interface) like keras.

• About the Trainers:

- A Team of Trainers with 30+ years of overall combined industry experience And 8 years on AIML. Currently working on AI & data science related projects.
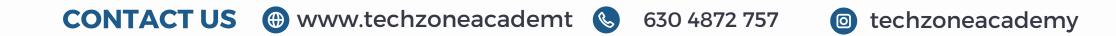
• What is the prerequisite?

- Basic computer knowledge, good in math (12th class), passion to build intelligent systems to solve real-world problems.

• Education Qualification?

- Any Graduate/Engineer with a math background
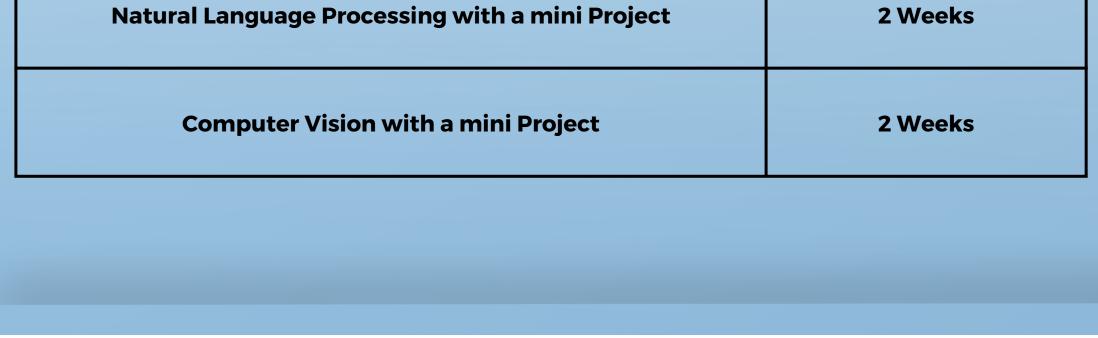
• Duration

120 Hours (normal track)

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• Content@glance

• Topics	• Duaration
Introduction to AI (Artificial intelligence)	
Programming (Python) for AI	6 Weeks
Mathematics for AI	1 Week
ML (Machine Learning) - a branch of AI	2 Week
Deep Learning - a subfield of ML	2 Weeks
• Getting started With Cloud AI on Cloud	1 Week
Natural Language Processing with a mini Project	2 Weeks
Computer Vision with a mini Project	2 Weeks

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• Topics	• Details
Introduction to AI	**Introduction** **History, Why? How? Real-time Examples of AI**

Programming for AI	• **Getting Started with Python**
	• **Python Intermediate**
	• **Numpy**
	• **Python Advanced**
	  ○ **RegEx**
	  ○ **OOPs**
	  ○ **Lambda**
	  ○ **Databases**

Mathematics for AI	• **Linear Algebra** • **Calculus** • **Fundamental Statistics** • **Advanced Calculus** • **Numerical Optimisation**

Machine Learning	• **Machine Learning**
	  ○ **Supervised Learning**
	  ○ **Unsupervised Learning**
	  ○ **Reinforcement Learning**
	  ○ **Linear Regression**
	  ○ **Logistic Regression**
	  ○ **Polynomial Regression**
	  ○ **Multiple Regression**
	  ○ **Classification**
	  ○ **Prediction**
	  ○ **Algorithms**
	  ○ **Support Vector Machines (SVMs)**
	  ○ **Tree Models**
	  ○ **Naive Bayes Model**
	  ○ **Principal Component Analysis**
	  ○ **Clustering**
	  ○ **Boosting**
	  ○ **Time Series**

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• Topics

• Details

Topics	Details

Deep Learning	• **Deep Learning**
	  ○ **Architecture**
	  ○ **Neural Networks**
	  ○ **Multi Level Perceptron**
	  ○ **Convolutional Neural Networks**
	  ○ **Recurrent Neural Networks**

	Professional AI
Getting started With Cloud	• **AWS Fundamentals and Services** • **Azure Fundamentals and Services**
Natural Language Processing	• **Natural Language Processing** • **Introduction** • **Exploring NLP Libraries** • **NLTK** • **SPACY** • **GENSIM** • **KERAS** • **RASA** • **REGEX** • **SCIKIT LEARN** • **Python text files** • **PDF and regular expressions** • **Tokenization** • **Stemming** • **Lemmatization** • **stop words Phrase Matching and Vocabulary** • **Topic Modeling** • **Latent Dirichlet Allocation Overview** • **Non-negative Matrix Factorization** • **Text Blob** • **TextBlob Introduction**

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• Topics	• Details
Natural Language Processing	• Finding a polarity of a string with TextBlob • Sentiment analysis with TextBlob • Measuring language subjectivity with TextBlob and Python • Language Translation with Python Module TextBlob , • extBlob nGrams Spacy • Concepts and Parameters and Interacting with Chatbot • Bonus: Discovering NLP on Cloud (AWS, Azure and Google Cloud Platform
Computer Vision	• Computer Vision • Introduction • OpenCV • Introduction to the Library • • Image Processing for Computer Vision • Linear Image Processing • Model Fitting • Frequency Domain Analysis • Camera Models and Calibration • Camera Views • Camera Models • Camera Calibration • Stereo Geometry • Image Motion • Image Classification • Photometry • Optical Flow • Tracking • Parametric model • Useful Libraries • Recognition • Generative Models • Discriminative models

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• Topics	• Details
Computer Vision	• Finding a polarity of a string with TextBlob • Sentiment analysis with TextBlob • Measuring language subjectivity with TextBlob and Python • Language Translation with Python Module TextBlob , • extBlob nGrams Spacy • Color spaces and Segmentation • 3D perception • Binary Morphology • Bonus: Computer Vision On Cloud (AWS, Azure and Google Cloud Platform) • Bonus: Discovering NLP on Cloud (AWS, Azure and Google Cloud Platform
Mini projects	• Auto Attendance through Facial recognition • Chatbots • Voice to text processing • OCR on Cloud. •

Duration	120 Hrs