Artificial Intelligence / Machine Learning Practices

Transform the world with intelligence

Cognitive Convergence

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About Us

Cognitive Convergence is Subject Matter Expert in Office 365, Dynamics 365, SharePoint, Project Server, SAAS, Power Platform: Power Apps-Power BI-Power Automate-Power Virtual Agents, Artificial Intelligence and Machine Learning practices

Our Core services regarding AI/ML include following

- ✓ Development, Consultation, Architecture, Implementation and Integration of AI/ML Solution, Services and Products

- ✓ Artificial Intelligence as a Service (AIaaS) and Machine Learning as a Service (MLaaS)
- ✓ Implement AI and ML in Natural Language Processing and Text manipulation
- ✓ Apply Machine Learning for pattern recognition, Security, and anomaly detection
- ✓ Implement algorithms using different frameworks including TensorFlow, ML.NET, Scikit Learn, Microsoft CNTK, Spark MLlib, and much more
- ✓ Apply AI/ML for ASP.NET and Node js SAAS Applications
- ✓ AI/ML in EdTech domain in EdConvergence product
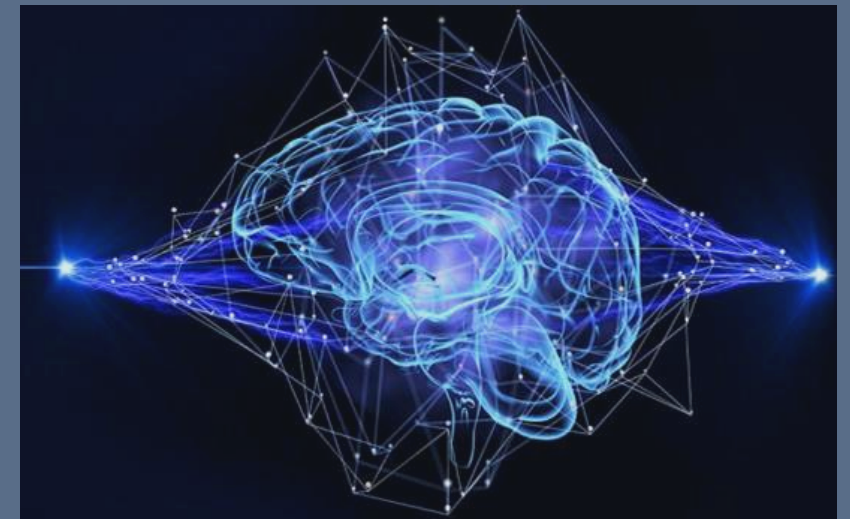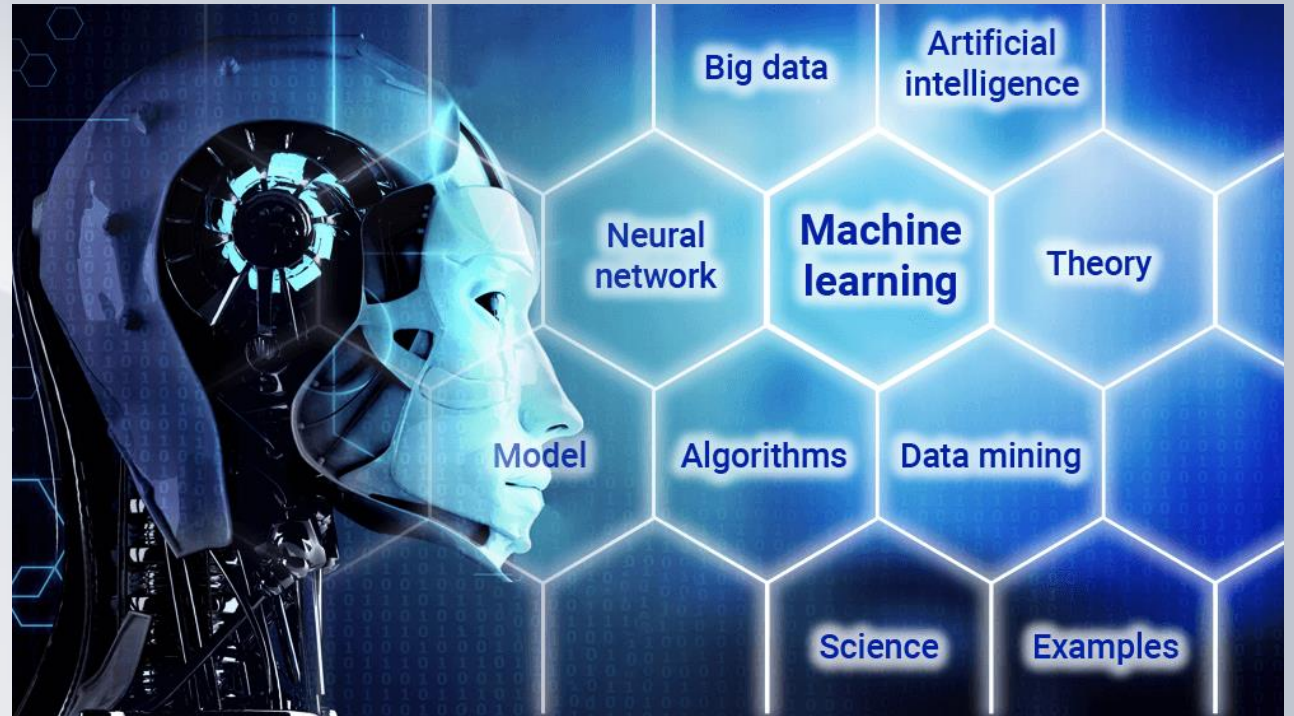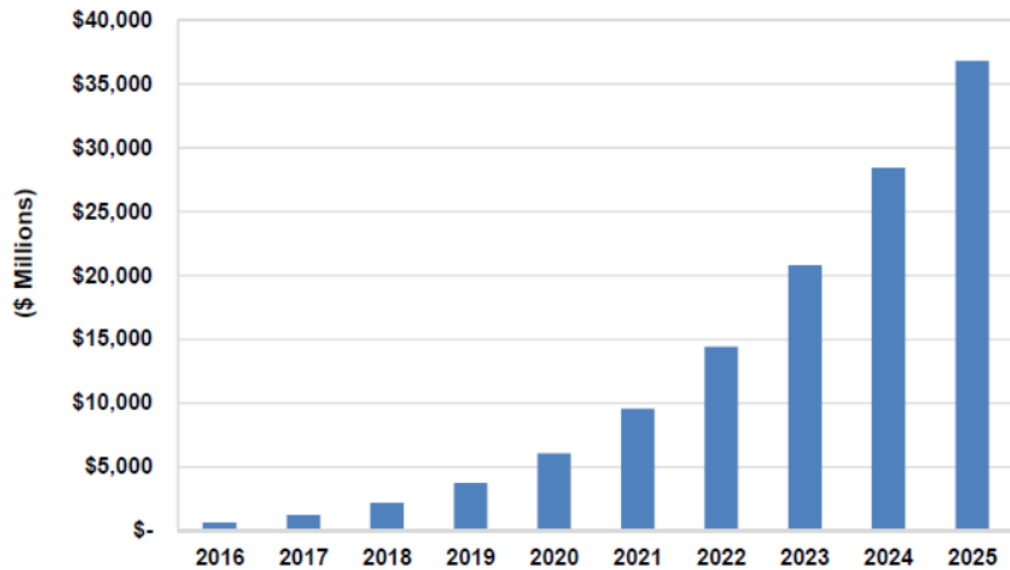- ✓ AI/ML in Psyche Tech domain in PsycheConvergence product

Market Potential

Chart 1.1   Artificial Intelligence Revenue, World Markets: 2016-2025
(Source: Tractica)
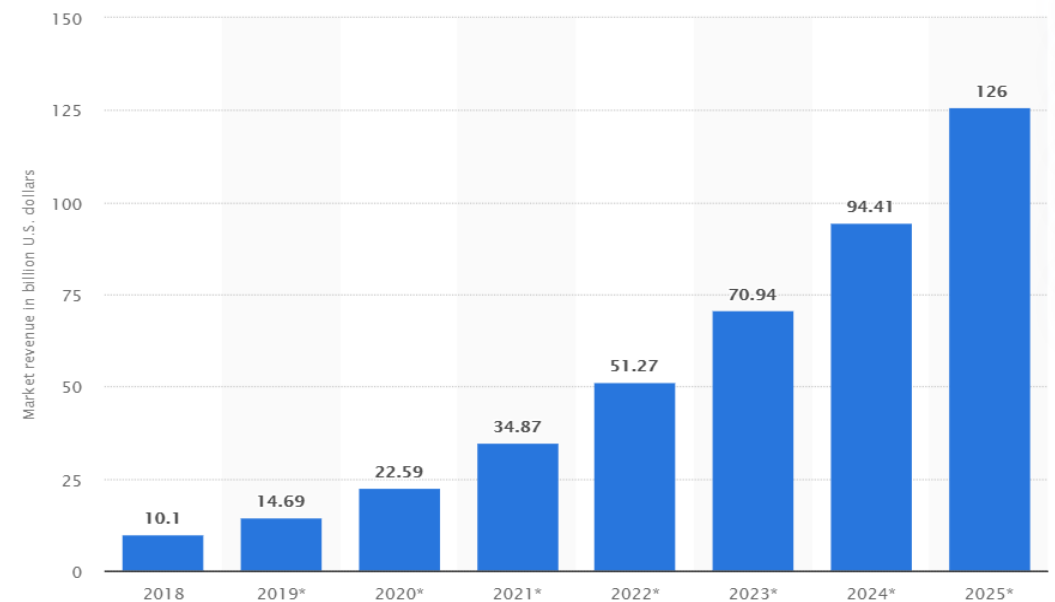
A new report from market research firm Tractica forecasts that the annual global revenue for artificial intelligence products and services will grow from 643.7 million in 2016 to $36.8 billion by 2025. worth about $308.4 million in 2016 and will grow to $16 billion by 2025.

Source - Tractica

Revenues from the artificial intelligence (AI) software market worldwide from 2018 to 2025 (in billion U.S. dollars)
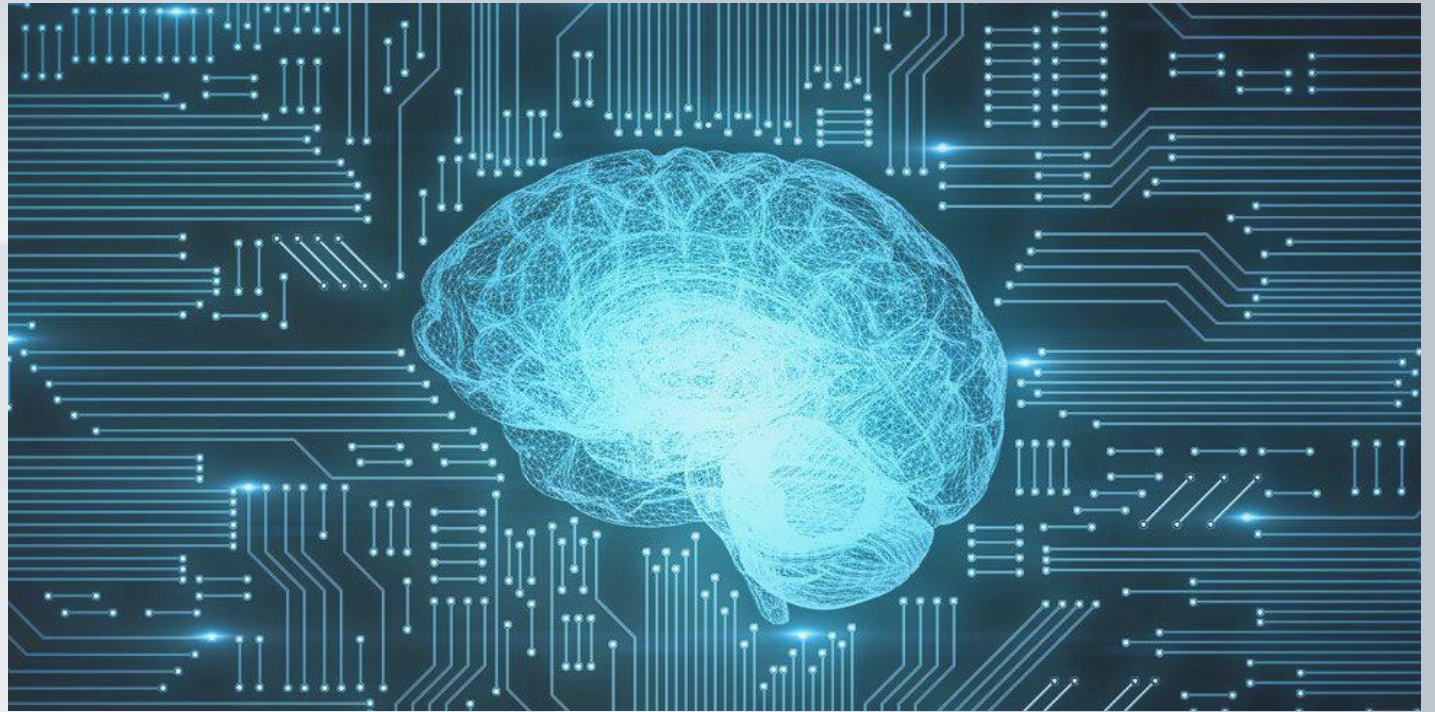Source – Statista 2021

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Why Choose Us?

Our AI developers and platforms expert has a full suite of AI/ML services to develop, deploy, and manage AI-enabled solutions. Our core strategies are:
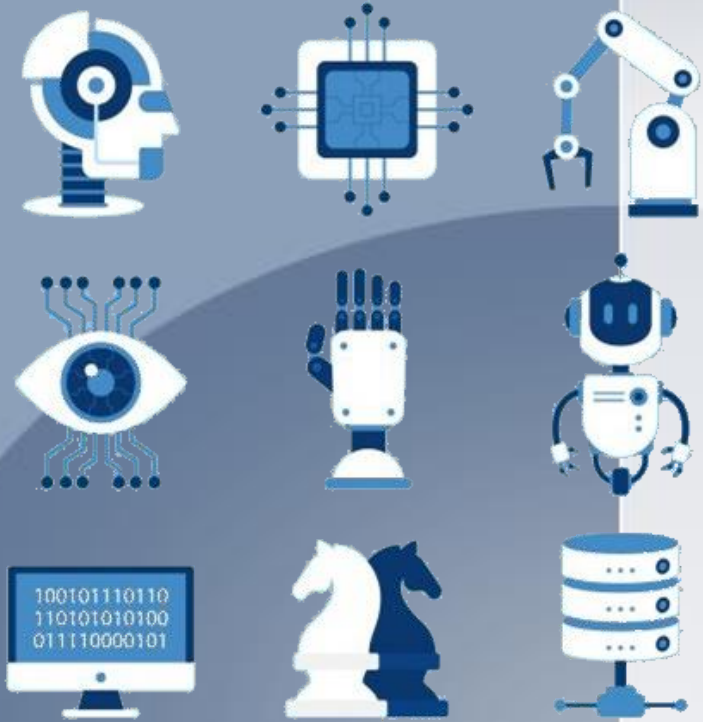
- ✓ Applied Solutions
- ✓ Data Engineering
- ✓ Multiple Platforms: We have delivered AI predictive analytic solutions in multiple frameworks like Azure
- ✓ Streamline Performance: To improve outcomes over time, we design systems that learn from data and experience
- ✓ Automation: To transform operations through automation leverage robotic, intelligent, and autonomous capabilities
- ✓ Natural language processing

Our Capabilities

Our approach to AI Consulting is

- ✓ Predictive analysis
- ✓ Machine Learning
- ✓ Process Automation
- ✓ Computer Vision
- ✓ Smart meeting reminder

- ✓ Advanced Analytics
- ✓ Voice-enabled technology
- ✓ Computer vision apps
- ✓ Live ID
- ✓ Data visualization

Artificial Intelligence Elements

Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The common practiced elements of AI by Cognitive Convergence are:

- ✓ Learning – Turn the data into actionable information by acquiring data and creating rules.
- ✓ Reasoning – Choose the right algorithm to reach the desired outcome
- ✓ Self-Correction – Continually fine-tuned algorithms which provide the most accurate results possible.
- ✓ Problem Solving – Reach a definite goal from a present state or condition.
- ✓ Perception – Scan the environment using various sense-organs, real or artificial, and processes the scene into objects.
- ✓ Language Understanding and processing – Extract information from text, any language and generate results for prediction and manipulation.
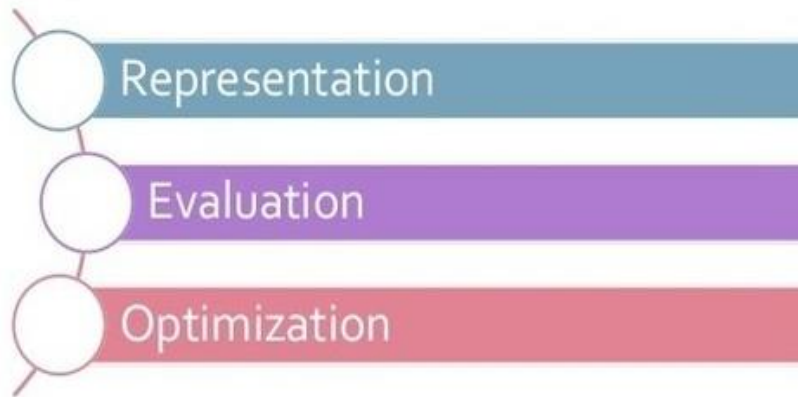
Machine Learning Elements

With Machine Learning, AI can learn new things and hence can enhance itself with the help of a learning experience. Machine Learning elements implemented by Cognitive Convergence are:

- ✓ Representation – Represent knowledge using ML in
    - o Decision trees
    - o Sets of rules and Instances
    - o Graphical models
    - o Neural networks
    - o Support vector machines, etc.
- ✓ Evaluation - Evaluate candidate programs including
    - o Accuracy
    - o Prediction and recall
    - o Squared error and likelihood
    - o Posterior probability
    - o Cost and Margin
    - o Entropy k-L divergence, etc.
- ✓ Optimization – Generate candidate programs known as the search process such as
    - o Combinatorial optimization
    - o Convex optimization
    - o Constrained optimization, etc.

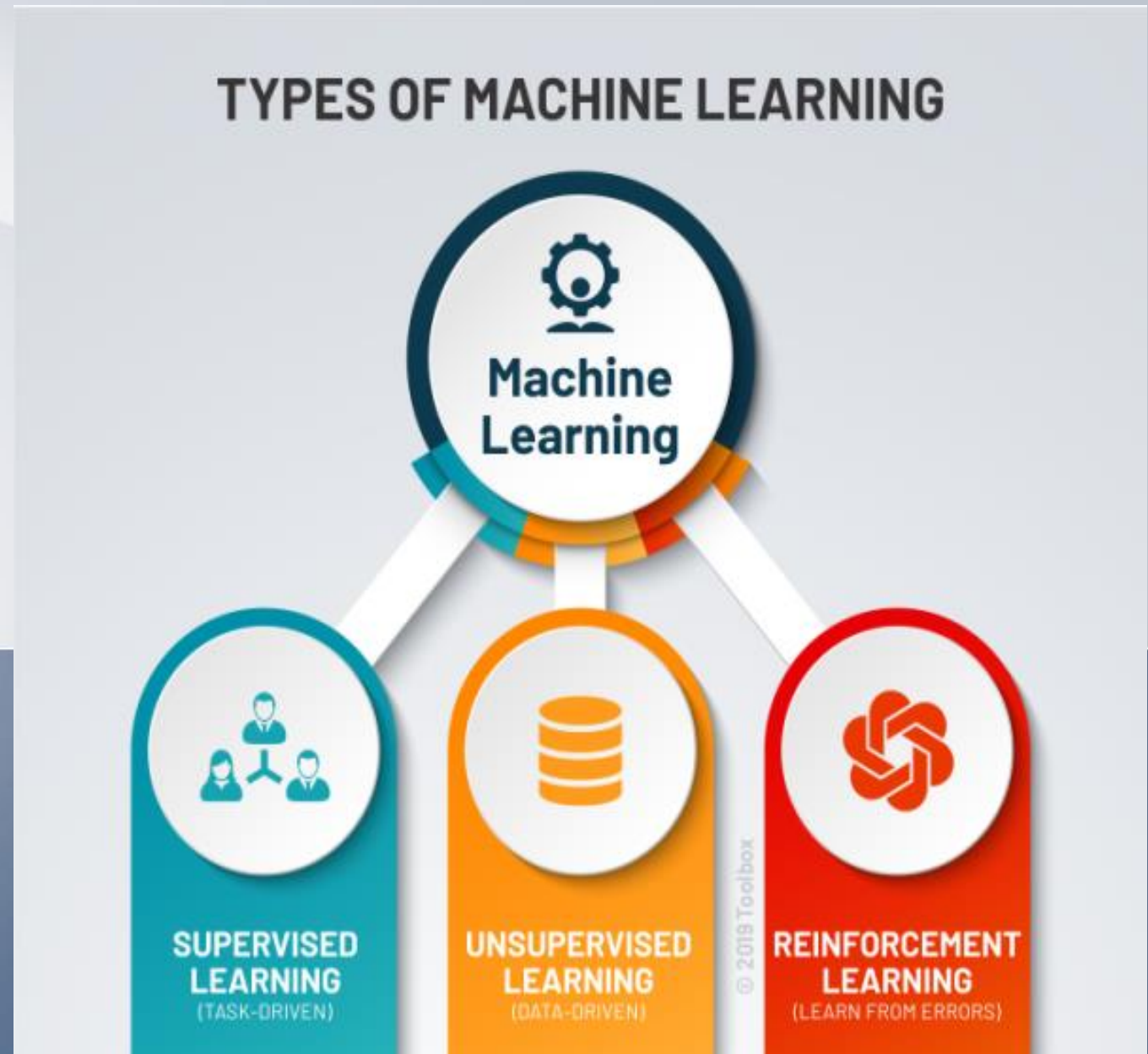Representation

Evaluation

Optimization

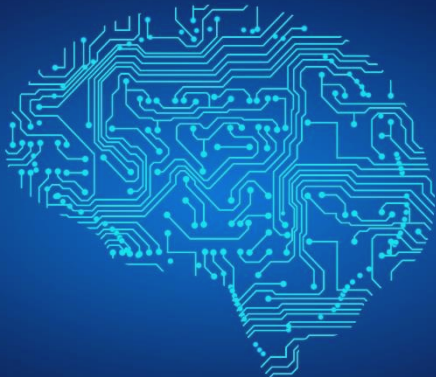# Machine learning types

We have expertise in these 3 basic types of Machine Learning algorithms

Supervised Learning – Calculate the output based on a given input.

Unsupervised Learning – Discover the structure of the data and group similar items to form "clusters" without the input data.

Reinforcement Learning – Learn from a sequence of actions where an AI agent is like a self-driving car.

Artificial Intelligence/Machine Learning Practices and Applications

Health Care for Assisting Doctors

Business for Smoothening overall process

Education for automating Grading System

Travel Industry for Predicting pricing pattern

Autonomous Vehicles for Advanced Fetures

Social Media for serving personalized experience

Implement AI/ML in the following domains using Cognitive Convergence services

- ✓ Natural Language Processing (NLP)
- ✓ Pattern Recognition
- ✓ HealthCare
- ✓ Education
- ✓ Business
- ✓ Security
- ✓ Image Detection
- ✓ Text manipulation
- ✓ Social Media
- ✓ Psychology
- ✓ Product Recommendations and predictions

Artificial Intelligence as a Service

AIaaS - Artificial intelligence as a service refers to companies that provide out-of-the-box AI solutions, making AI technology accessible to everyone. You can harness the power of AI by using our services of AIaaS companies.

Our expertise in some of the important tools of AIaaS platforms are:

Amazon	Microsoft Azure	Google
✓ Rekognition Video ✓ Rekognition Image ✓ Transcribe ✓ Polly Translate ✓ Comprehend ✓ Lex	✓ Emotion API ✓ Face API ✓ Content Moderator ✓ Computer Vision API ✓ Big Speech API ✓ Translator Text API ✓ Language Understanding ✓ Azure Bot Service ✓ Custom speech service	✓ AutoML Vision ✓ Vision API ✓ Video Intelligence ✓ Speech API ✓ Text-to-Speech API ✓ Translation API ✓ Natural Language API ✓ Dialogflow

Machine Learning as a Service

MLaaS - an umbrella definition of various cloud-based platforms that cover most infrastructure issues such as data pre-processing, model training, and model evaluation, with further prediction.

Our expertise in top MLaaS companies and the supported frameworks are:

Amazon	Microsoft	Google	IBM
✓ TensorFlow ✓ MXNet ✓ Keras ✓ Gluon ✓ PyTorch ✓ Caffe2 ✓ Chainer ✓ Torch	✓ Scikit Learn ✓ Microsoft CNTK ✓ TensorFlow ✓ SparkML	✓ TensorFlow ✓ Scikit Learn ✓ XGBoost ✓ Keras	✓ TensorFlow ✓ Spark MLlib ✓ Scikit Learn ✓ XGBoost ✓ PyTorch ✓ IBM SPSS ✓ PMML

AI/ML Platforms and Frameworks

Artificial Intelligence platforms/frameworks simulate the cognitive functions performed by human minds such as Problem Solving, Learning, Reasoning, Social Intelligence, and General Intelligence. Our expertise in some of the important frameworks:

- ✓ Google AI Platform
- ✓ Microsoft Azure
- ✓ DialogFlow
- ✓ Theano
- ✓ Keras
- ✓ Scikit Learn
- ✓ Mllib (Apache Spark)

- ✓ TensorFlow
- ✓ RainBird
- ✓ Microsoft CNTK
- ✓ Accord.NET
- ✓ Caffe
- ✓ Azure ML Studio
- ✓ Receptiviti
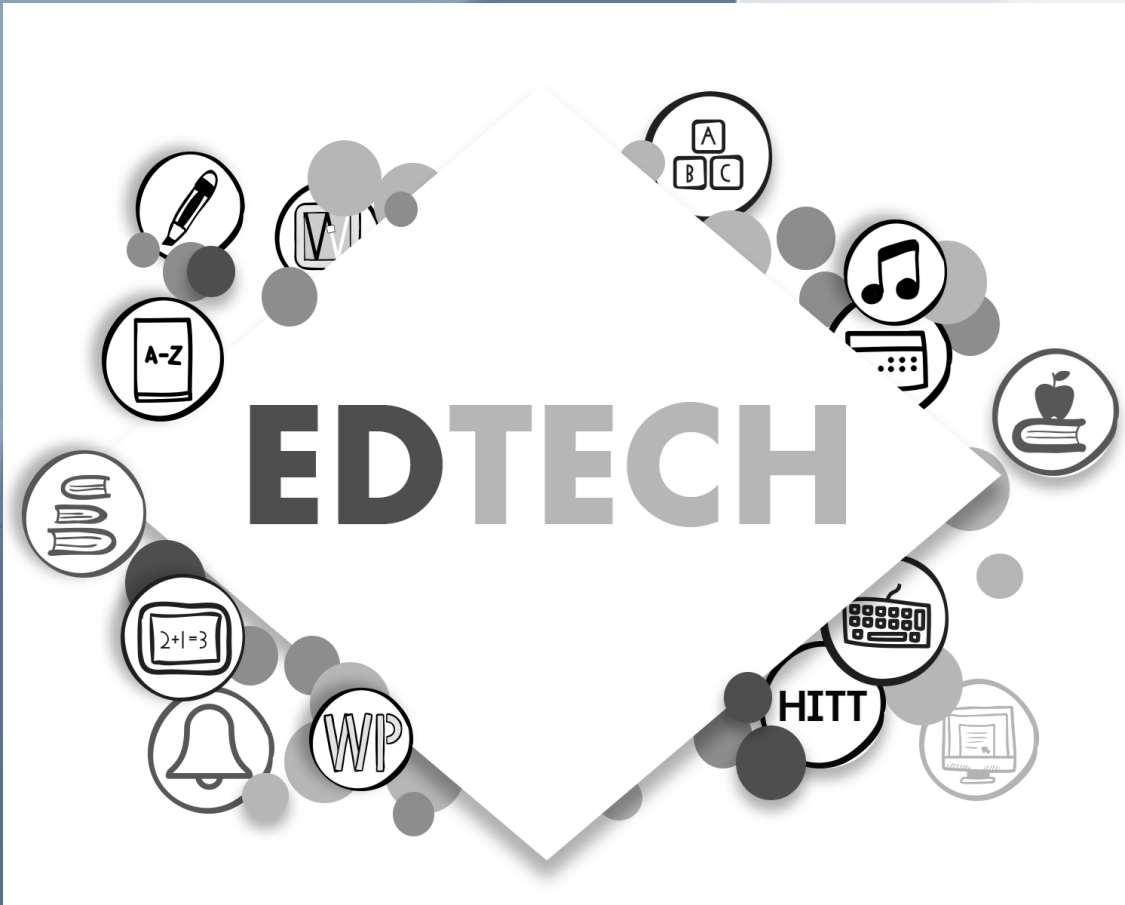
AI/ML for ASP.NET MVC

ASP.NET is an ideal choice to blend Artificial intelligence with, because of its cloud deployment support.

Our expertise in Microsoft services that enable development teams to integrate AI into ASP.NET are:

✓ Microsoft Cognitive Services

✓ Bot Framework

✓ Azure Machine Learning

✓ Cognitive .NET Development Services

✓ TensorFlow

✓ CNTK

✓ Accord.NET

✓ ML.NET

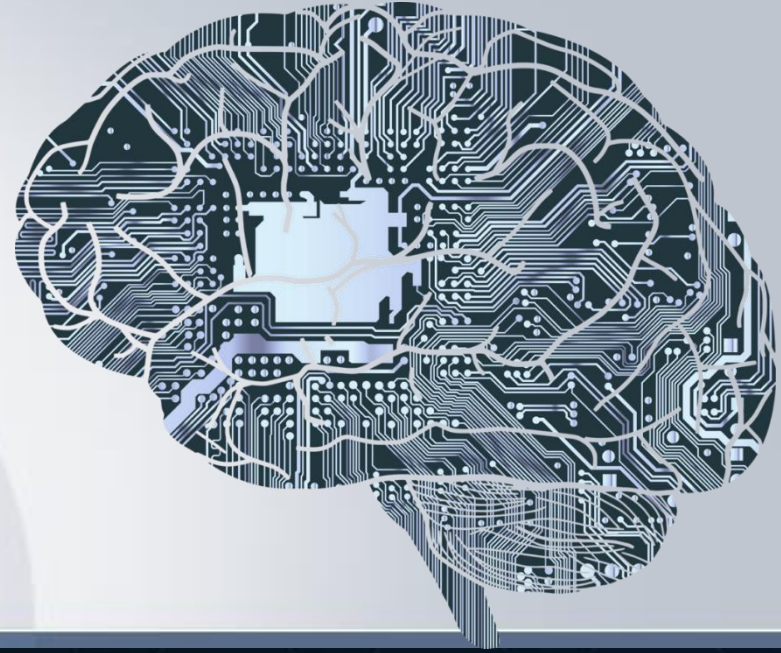# AI/ML in EdConvergence (An EdTech Solution of Cognitive Convergence)

Artificial Intelligence and Machine Learning are extensively being applied in the EdTech domain. In EdConvergence,

- ✓ Check the skills and the learning abilities of each student and provide them with a personalized curriculum.
- ✓ Group students and teachers according to their needs and availability.
- ✓ Predict Student's performance by identifying and learning each student's weakness and suggest ways to improve.
- ✓ Update students and teachers with recent news and posts relevant to them.

AI/ML in PsycheConvergence (A PsycheTech Solution of Cognitive Convergence)

The Phychological actions of listening, observing, increasing awareness, etc. can be automated using Artificial Intelligence and Machine Learning, such as in the PsycheConvergence product by Cognitive Convergence.

- ✓ Automate the action for listening and extracting useful information by applying patterns and practices that are used by Psychologists/Psychiatrists
- ✓ Through ML, the Machine learns from patient's data and its history, search results, etc., and can identify the similar type of recommendations of doctors which can lead to a better experience.
- ✓ Enhance psychotherapy with computer-implemented tools.
- ✓ Raise self-awareness to the patient about the condition he/she is going through
- ✓ Classifications according to the Differentiation of Self Scale and the Operational Adaptive Diagnostic Scale can also be obtained automatically from a pre-established set of questions.

Artificial Intelligence/Machine Learning services of **Cognitive Convergence** offers strategic opportunities to clients, investors, and partners that is

- ✓ Unique and industry defining

- ✓ Mutual interest centric business approach

- ✓ Significantly enhance company's footprint

- ✓ Turn grow revenues by entering into new and exciting **Technology Domains, App development ideas, Solution Development,** and **Joint venture projects**

- ✓ 1st mover advantage with

  - ✓ Talent: 100%

  - ✓ Timing:100%

  - ✓ Technology: 100%

  - ✓ Technique: 100%

Thank You

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For questions or queries, contact us, we will be sure to get back to you as soon as possible.