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Training course in Machine Learning

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Training course plan

1. What is Machine Learning?
2. Machine Learning Paradigms
3. **Linear Regression:** - Linear Two class classification
- Linear multi-class classification
- Linear unsupervised learning
4. **Kernel Methods:** - Fixed shape and universal approximation
- Kernel trick
- Optimization
- Cross-validation
5. **Neural Network:** - Fully connected neural network
- Activation function
- Optimization
- Early stopping
6. **Tree-based learner:** - Regression Trees
- Classification trees
- Gradient boosting
- Random forest
- Cross-validation

References

Machine Learning Refined: Foundations, Algorithms, and Applications: Jeremy Watt, Reza Borhani, Aggelos K. Katsaggelos
 Introduction to Machine Learning: Etienne Bernard

*This workshop will be animated by practical illustrations and examples with Python language (jupyter notebook) and Wolfram Language (Mathematica)

Prerequisite: Python (anaconda), numpy, autograd, mlrefined library. Mathematica (trial version)

