

Journal & Research Paper Links:

Introduction to Machine Learning-

Topics: Learning Paradigms, PAC Learning, Probability, Version Spaces-

1. **Understanding Machine Learning: From Theory to Algorithms** (Book by Shai Shalev-Shwartz & Shai Ben-David)

<https://www.cs.huji.ac.il/~shais/UnderstandingMachineLearning/>

2. **"An Introduction to Statistical Learning"**

Gareth James et al., Springer, 2023 (Free PDF)

<https://www.statlearning.com/>

3. **"An Introduction to Statistical Learning"**

Gareth James et al., Springer, 2023 (Free PDF)

<https://www.statlearning.com/>

Topics: Data Collection, Preprocessing, Missing Values, Normalization, Outlier Analysis, Model Selection-

4. **"A Survey of Data Preprocessing Techniques for Classification"**

A. García et al., Knowledge and Information Systems (2016)

<https://doi.org/10.1007/s10115-014-0791-9>

5. **"Data Cleaning: Problems and Current Approaches"**

Hernández & Stolfo, IEEE Data Engineering Bulletin (1998)

<https://www.cs.columbia.edu/~sal/Projects/data-cleaning.pdf>

6. **"An Overview of Model Evaluation, Model Selection, and Algorithm Selection in Machine Learning"**

A. Raschka, arXiv (2018)

<https://arxiv.org/abs/1811.12808>

Supervised Learning-

Topics: Linear & Non-Linear Classification, Regression, Naïve Bayes, Decision Trees, ID3, CART-

7. **"Induction of Decision Trees"**

J.R. Quinlan, Machine Learning, 1986

<https://link.springer.com/article/10.1007/BF00116251>

8. **"Classification and Regression Trees (CART)"**

Breiman et al., 1984 (Book, Chapman & Hall/CRC)

<https://www.routledge.com/Classification-and-Regression-Trees/Breiman-Friedman-Olshen-Stone/p/book/9780412048418>

9. "A Comparison of Linear Regression and Multilinear Regression for Predictive Modeling"
Elsevier, 2019
<https://doi.org/10.1016/j.procs.2019.12.123>
10. **Support Vector Machines for Classification and Regression"**
Smola & Schölkopf, Neurocomputing (2004)
<https://doi.org/10.1016/j.neucom.2003.10.060>
11. **"Semi-Supervised Learning Literature Survey"**
Xiaojin Zhu, University of Wisconsin-Madison (2008)
https://pages.cs.wisc.edu/~jerryzhu/pub/ssl_survey.pdf
12. **"Perceptrons and Neural Networks"**
Rosenblatt, Psychological Review, 1958
<https://doi.org/10.1037/h0042519>

Unsupervised Learning-

Topics: Clustering (K-Means, K-Modes, Hierarchical, DBSCAN), PCA, SOM, EM, Reinforcement Learning-

13. **"A K-Means Clustering Algorithm"**
J. MacQueen, Proc. 5th Berkeley Symposium, 1967
<https://projecteuclid.org/euclid.bsmmsp/1200512992>
14. **"Density-Based Spatial Clustering of Applications with Noise (DBSCAN)"**
Ester et al., KDD Conference, 1996
<https://www.aaai.org/Papers/KDD/1996/KDD96-037.pdf>
15. **"Principal Component Analysis"**
I.T. Jolliffe, Springer Series, 2011
<https://link.springer.com/book/10.1007/978-1-4757-1904-8>
16. **"A Survey of Reinforcement Learning: Techniques, Applications and Research Challenges"**
Kiumarsi et al., IEEE Transactions on Cybernetics (2018)
<https://doi.org/10.1109/TCYB.2018.2847960>

Evaluation Metrics-

Topics: ROC Curves, Error Correction, Significance Tests-

17. **"ROC Analysis in Machine Learning"**
Fawcett, Pattern Recognition Letters (2006)
<https://doi.org/10.1016/j.patrec.2005.10.010>
18. **"Statistical Comparisons of Classifiers over Multiple Data Sets"**
Demsar, Journal of Machine Learning Research (2006)
<http://www.jmlr.org/papers/volume7/demsar06a/demsar06a.pdf>

Ensemble Learning-

Topics: Bagging, Boosting, Random Forest, AdaBoost, XGBoost

19. “Bagging Predictors”
Leo Breiman, Machine Learning, 1996
<https://link.springer.com/article/10.1007/BF00058655>
20. “A Decision-Theoretic Generalization of On-Line Learning and an Application to Boosting”
Freund & Schapire, Journal of Computer and System Sciences (1997)
<https://doi.org/10.1006/jcss.1997.1504>
21. “XGBoost: A Scalable Tree Boosting System”
T. Chen & C. Guestrin, KDD 2016
<https://arxiv.org/abs/1603.02754>
22. “Random Forests”
Breiman, Machine Learning, 2001
<https://link.springer.com/article/10.1023/A:1010933404324>