# **FBYZR7031 Yapay Zeka’da İstatistiki Metodlar I ve FBYZR7028 Yapay Zeka’da İstatistiki Metodlar II dersler için kısa kısa okuma notları (Güncellenecektir )**

**İstatistik ve Bilgisayar Biliminde kullanılan kavramlar ve açıklamaları**

|  |  |  |
| --- | --- | --- |
| Statistics | Computer Science | Explanations |
| Data point  | Example/instance  |  |
| Variable selection  | Feature selection |  |
| Estimation  | Learning | In the context of developing a model, use data to estimate (or learn) unknown quantity or parameters of the model,although the keyword ‘learning’ is an umbrella term in computer science that also means prediction etc |
| Classification  | Supervised learning | Predicting a discrete *y* from *X* |
| Type I and Type II errors  | False positive and false negative | Nature of errors made by a classification rule/model |
| Regression  | Supervised learning | Predicting a continuous *y* from *X* |
| Fitting  | Learning | Terms used by the respective communities to describe model buildingb |
| Test set performance  | Generalization | Terms used by the respective communities to assess model performance ondata different from that used to develop the modelb |
| Clustering, anomaly detection, principal component analysis | Unsupervised Learning | Putting data into groupsa |
| Dependent variable  | Label (or Target) | The *yi* ’s |
| Covariates or predictors  | Features | The *Xi* ’s |
| Classifier  | Hypothesis | Map from covariates to outcome |
| Bayesian inference  | Bayesian inference | Statistical methods for using data to update probability |
| Directed acyclic graph  | Bayesian net | Multivariate distribution with conditional independence relations |
| Statistical consistency large deviation bounds | Probably approximately correct (PAC) learning | Uniform bounds on probability of errors |
| Sequential analysis  | On-line learning | Receives data sequentially. Learn or predict an incoming stream of observations, one sample at a time. |
| Class of models (*M*) | Hypothesis class (*F*) | Set of models like logistic regression for binary classification problem |

Kaynak : Rajiv Sambasivan, R,Das, S., Sahu,S. A Bayesian perspective of statistical machine learning for big data <https://link.springer.com/article/10.1007/s00180-020-00970-8>

**Machine Learning Scheme**

<https://www.xmind.net/m/T9Nm/>

**Videolar :**

|  |  |
| --- | --- |
| Mode, Median,Mean,Range, SDeviation : | https://www.youtube.com/watch?v=mk8tOD0t8M0 |
| Histogram : | https://www.youtube.com/watch?v=qBigTkBLU6g |
| P values :  | https://www.youtube.com/watch?v=5Z9OIYA8He8 |
| Z-Scores, Standardization, and the Standard Normal Distribution :  | https://www.youtube.com/watch?v=2tuBREK\_mgE |
| Bias and MSE  | https://www.youtube.com/watch?v=XqWfeND04vs |
| Probability vs likelihood : | https://www.youtube.com/watch?v=pYxNSUDSFH4 |
| Maximum Likelihood : | https://www.youtube.com/watch?v=XepXtl9YKwc |
| ML for Normal Distribution : | <https://www.youtube.com/watch?v=Dn6b9fCIUpM> |
| Gradian Descent:  | https://www.youtube.com/watch?v=sDv4f4s2SB8 |
|  |  |

**Notlar :**

# **Machine Learning — Probability & Statistics** : <https://towardsdatascience.com/machine-learning-probability-statistics-f830f8c09326>

# **Statistics & Probability Basics for Machine Learning — Part 1 :** [https://medium.com/@falgunimukherjee/statistics-probability-basics-for-machine-learning-part-1-e811891156c3](https://medium.com/%40falgunimukherjee/statistics-probability-basics-for-machine-learning-part-1-e811891156c3)

# **Stanford CS 229 — Makine Öğrenmesi, CS 230 — Derin Öğrenme ve CS 221 — Yapay Zeka El Kitapları Artık Türkçe :** https://medium.com/yavuzkomecoglu/stanford-cs-229-makine-%C3%B6%C4%9Frenmesi-ve-cs-230-derin-%C3%B6%C4%9Frenme-el-kitaplar%C4%B1-art%C4%B1k-t%C3%BCrk%C3%A7e-ed734ad76bed

**Elements of Probability and Statistics (Temel İstatistik Dersnotları ) ODTU :** https://ocw.metu.edu.tr/course/view.php?id=83

# **İstatistiksel Öğrenme II – Modelin Netliğini Değerlendirme:** https://mertricks.com/2015/05/30/modelin-netligini-degerlendirme/

**Forecast KPI: RMSE, MAE, MAPE & Bias :** https://medium.com/analytics-vidhya/forecast-kpi-rmse-mae-mape-bias-cdc5703d242d

**Cross Entropy :** https://veribilimcisi.com/2018/05/04/log-kaybi-ve-capraz-entropi-log-loss-and-cross-entropy/

**Understanding Kalman Filters with Python :** [https://medium.com/@jaems33/understanding-kalman-filters-with-python-2310e87b8f48](https://medium.com/%40jaems33/understanding-kalman-filters-with-python-2310e87b8f48)

**Ridge ve Lasso Regresyon :** https://medium.com/kaveai/ridge-ve-lasso-regresyonu-temel-matemati%C4%9Fi-ve-python-uygulamas%C4%B1yla-363916e32d8d