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| Artificial Intelligence | |
| **PART: 01** |  |
|  | [Artificial Intelligence Syllabus and Analysis](https://www.youtube.com/watch?v=uB3i-qV6VdM&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=1&pp=iAQB) |
|  | [What is Artificial Intelligence | Lear AI with Real Life Examples](https://www.youtube.com/watch?v=s-s9ilkMVj8&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=2&pp=iAQB) |
|  | [What is State Space Search | Introduction to Problem Solving](https://www.youtube.com/watch?v=E5jVBqe59EE&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=3&pp=iAQB) |
|  | [Uninformed vs Informed Search with Example](https://www.youtube.com/watch?v=gZpUcsB9TFc&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=4&pp=iAQB) |
|  | [Breadth First Search with Example | Uninformed Search](https://www.youtube.com/watch?v=qul0f79gxGs&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=5&pp=iAQB) |
|  | [Depth First Search (DFS) with Example | Uninformed Search](https://www.youtube.com/watch?v=f8luGFRtshY&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=6&pp=iAQB) |
|  | [Bidirectional Search Algorithm with Real Life Example](https://www.youtube.com/watch?v=rEema9uQ02c&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=7&pp=iAQB) |
|  | [8-Puzzle Problem without Heuristic](https://www.youtube.com/watch?v=_CrEYrcImv0&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=8&pp=iAQB) |
|  | [What is Heuristic in AI | Why we use Heuristic | How to Calculate Heuristic](https://www.youtube.com/watch?v=5F9YzkpnaRw&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=9&pp=iAQB) |
|  | [How to Solve 8-Puzzle Problem with Heuristic (Informed Search)](https://www.youtube.com/watch?v=nmWGhb9E4es&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=10&pp=iAQB) |
|  | [Generate and Test Search with Real Life Example](https://www.youtube.com/watch?v=h-AfcPvpld4&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=11&pp=iAQB) |
|  | [Best First Search Algorithm | How It Works | Pros and Cons](https://www.youtube.com/watch?v=7ffDUDjwz5E&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=12&pp=iAQB) |
|  | [Beam Search Algorithm | Heuristic Search Techniques](https://www.youtube.com/watch?v=jhoXO1XF6Fk&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=13&pp=iAQB) |
|  | [Hill Climbing Algorithm with Real Live Examples](https://www.youtube.com/watch?v=3SiWtAnUROs&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=14&pp=iAQB) |
|  | [A\* Algorithm with Examples](https://www.youtube.com/watch?v=tvAh0JZF2YE&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=15&pp=iAQB) |
|  | [How to Proof A\* Admissible | Underestimation and Overestimation of A\*](https://www.youtube.com/watch?v=xz1Nq6cZejI&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=16&pp=iAQB) |
|  | [AO\* Algorithm with Example](https://www.youtube.com/watch?v=u_TE42-uWD0&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=17&pp=iAQB) |
|  | [Introduction to Game Playing Algorithm with Example](https://www.youtube.com/watch?v=FFzdXJ49KAI&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=18&pp=iAQB) |
|  | [Minimax Algorithm in Game Playing](https://www.youtube.com/watch?v=Ntu8nNBL28o&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=19&pp=iAQB) |
|  | [Alpha Beta Pruning with Example](https://www.youtube.com/watch?v=dEs_kbvu_0s&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=20&pp=iAQB) |
|  | [Knowledge Representation and Reasoning | Logic, Semantic Net, Frames Etc](https://www.youtube.com/watch?v=9iN3O_oL2ac&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=21&pp=iAQB) |
|  | [Propositional Logic in Artificial Intelligence | Knowledge Representation](https://www.youtube.com/watch?v=6490tKrGEic&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=22&pp=iAQB) |
|  | [Introduction to Intelligent Agents and Their Types with Examples](https://www.youtube.com/watch?v=BkedAnQfJ_U&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=23&pp=iAQB) |
|  | [Simple Reflex Agent with Example](https://www.youtube.com/watch?v=KZFfbebQPAU&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=24&pp=iAQB) |
|  | [Model Based Reflex Agent with Real Live Example](https://www.youtube.com/watch?v=xKxh3fQwU8E&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=25&pp=iAQB) |
|  | [Goal Based Agents with Real Life Example](https://www.youtube.com/watch?v=HsdiMkKnNLk&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=26&pp=iAQB) |
|  | [Utility Based Agents with Real Live Examples](https://www.youtube.com/watch?v=e-egxFtAF_4&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=27&pp=iAQB) |
|  | [Fuzzy Logic with Examples](https://www.youtube.com/watch?v=vof2vhfqoBo&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=28&pp=iAQB) |
|  | [Various Operations in Fuzzy Logic with Examples](https://www.youtube.com/watch?v=o-2O4fmIu3E&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=29&pp=iAQB) |
|  | [Introduction to Neural Networks with Examples](https://www.youtube.com/watch?v=EYeF2e2IKEo&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=30&pp=iAQB) |
|  | [Natural Language Processing | NLP with Demo and Example](https://www.youtube.com/watch?v=bPpwZxasJo0&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=31&pp=iAQB) |
|  | [Supervised, Unsupervised and Reinforcement Learning](https://www.youtube.com/watch?v=4dwsSz_fNSQ&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=32&pp=iAQB) |
|  | [Genetic Algorithm | Simplest Explanation with Real Life Example](https://www.youtube.com/watch?v=96-u9s6D16k&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=33&pp=iAQB) |
|  | [What is Constraint Satisfaction | Constraint Satisfaction Problem (CSP) with Example](https://www.youtube.com/watch?v=AgyCSmDVk5s&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=34&pp=iAQB) |
|  | [How Constraint Satisfaction Algorithm Works | Explained with Interesting Example](https://www.youtube.com/watch?v=udOfKqeLVSg&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=35&pp=iAQB) |
|  | [Branch and Bound Algorithm with Examples | Easiest Explanation of B&B with Examples](https://www.youtube.com/watch?v=XZbrmetb9VE&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=36&pp=iAQB) |
|  | [0/1 Knapsack Using Branch and Bound with Examples](https://www.youtube.com/watch?v=CwM-Mv0Bm4Y&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=37&pp=iAQB) |
|  | [Reasoning Under Uncertainty](https://www.youtube.com/watch?v=MIf5shIfsj8&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=38&pp=iAQB) |
|  | [When There is Uncertainty](https://www.youtube.com/watch?v=PKeOJ4a2DNc&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=39&pp=iAQB) |
|  | [Informed vs Uninformed vs Adversarial Search with Examples](https://www.youtube.com/watch?v=YatDNnaJ1TU&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=40&pp=iAQB) |
|  | [Propositional Logic](https://www.youtube.com/watch?v=519FvcUQqYU&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=41&pp=iAQB) |
|  | [Predicate Logic](https://www.youtube.com/watch?v=FpGeg27Ffk8&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=42&pp=iAQB) |
|  | [How to Write First Order / Predicate Logic](https://www.youtube.com/watch?v=Aw3EOSr64j0&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=43&pp=iAQB) |
|  | [Negation of Quantifiers | Predicate Logic | Logic with Certainty](https://www.youtube.com/watch?v=XYfTz5gziBk&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=44&pp=iAQB) |
|  | [Bayes Theorem and Total Probability with Examples](https://www.youtube.com/watch?v=SktJqrYereQ&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=45&pp=iAQB) |
|  | [Bayesian Network with Examples | Easiest Explanation](https://www.youtube.com/watch?v=DVnubVOjZtg&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=47&pp=iAQB) |
|  | [Likelihood Weight Sampling | Inference Through Sampling | Uncertainty](https://www.youtube.com/watch?v=D4x0NB5cKGE&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=49&pp=iAQB) |
|  | [Rejection sampling | Probabilistic Inference | Sampling](https://www.youtube.com/watch?v=ilmJD8tRg-Q&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=51&pp=iAQB) |
|  | [Probabilistic Inference | Sampling](https://www.youtube.com/watch?v=kGlR6gBIjTk&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=52&pp=iAQB) |
|  | [Bayesian Network Numerical Example](https://www.youtube.com/watch?v=zLlKc8AePIQ&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=53&pp=iAQB) |
|  | [Understand Artificial Neural Networks form Basics with Examples | Components | Work](https://www.youtube.com/watch?v=1TmUwRALJW0&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=54&pp=iAQB) |
|  | [Token & Parameters in Llama3 META Models | 8B & 70B Parameters Model | GPT Model](https://www.youtube.com/watch?v=UcFhiOtNHsQ&list=PLxCzCOWd7aiHGhOHV-nwb0HR5US5GFKFI&index=55&pp=iAQB) |

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| Machine Learning | |
| **PART: 01** |  |
|  | [Introduction to Data Science & ML & Roadmap](https://www.youtube.com/watch?v=kz184QIO4ZQ&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=1&pp=iAQB) |
|  | [Supervised Learning Algorithms](https://www.youtube.com/watch?v=LKlOH8OLLcw&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=2&pp=iAQB) |
|  | [Introduction to Regression with Real Life Examples](https://www.youtube.com/watch?v=cHT-qLnRm0E&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=3&pp=iAQB) |
|  | [Linear Regression with Real Life Examples and Calculations | Easiest Explanation](https://www.youtube.com/watch?v=zUQr6HAAKp4&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=4&pp=iAQB) |
|  | [Logistic Regression with Simplest and Easiest Example](https://www.youtube.com/watch?v=r8OjlgWpAI0&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=5&pp=iAQB) |
|  | [Linear Regression vs Logistic Regression | Supervised Learning](https://www.youtube.com/watch?v=BVP1EDKb6_g&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=6&pp=iAQB) |
|  | [kNN Classification with Real Life Example | Movie Imdb Example | Supervised Learning](https://www.youtube.com/watch?v=O1nWXTXcCwI&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=7&pp=iAQB) |
|  | [Naïve Bayes Classification Full Explanation with Examples](https://www.youtube.com/watch?v=GBMMtXRiQX0&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=8&pp=iAQB) |
|  | [Introduction to Decision Tree with Real Life Examples](https://www.youtube.com/watch?v=mvveVcbHynE&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=9&pp=iAQB) |
|  | [Decision Tree | ID3 Algorithm with Examples and Calculations](https://www.youtube.com/watch?v=CWzpomtLqqs&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=10&pp=iAQB) |
|  | [Conditional Probability with Easiest Explanations and Example](https://www.youtube.com/watch?v=dQ6RL8qe320&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=11&pp=iAQB) |
|  | [Introduction to Ensemble Learning with Real Life Examples](https://www.youtube.com/watch?v=qQjOWmf8I_I&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=12&pp=iAQB) |
|  | [K-Mean Clustering with Numerical Example | Unsupervised Learning](https://www.youtube.com/watch?v=5FpsGnkbEpM&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=13&pp=iAQB) |
|  | [Hierarchical Clustering | Agglomerative vs Divisive with Examples](https://www.youtube.com/watch?v=zxQF8Rmpk1M&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=14&pp=iAQB) |
|  | [Single Linkage clustering | Agglomerative Clustering | Hierarchical Clustering](https://www.youtube.com/watch?v=pbTQQCA9Xs0&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=15&pp=iAQB) |
|  | [Complete Linkage | Clustering with Example | Clustering in Unsupervised Learning](https://www.youtube.com/watch?v=Ufzq9oLhzX0&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=16&pp=iAQB) |
|  | [K-medoids Clustering with Numerical Example](https://www.youtube.com/watch?v=FosEwkYIGmU&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=17&pp=iAQB) |
|  | [Random Forest in Machine Learning](https://www.youtube.com/watch?v=DXqxXe3rep0&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=18&pp=iAQB) |
|  | [kNN for Classified and Regression with Easiest Explanation](https://www.youtube.com/watch?v=zqQ_pi6j2jE&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=19&pp=iAQB) |
|  | [Mean, Median, Mode with Real Life Examples](https://www.youtube.com/watch?v=keLk7odKCsE&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=20&pp=iAQB) |
|  | [Standard Deviation and Variance with Examples](https://www.youtube.com/watch?v=D9xfxOzOwrQ&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=21&pp=iAQB) |
|  | [Bagging / Bootstrap Aggregating with Examples](https://www.youtube.com/watch?v=Oq27arfMwA0&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=22&pp=iAQB) |
|  | [Supervised vs Unsupervised Learning with Real Life Examples](https://www.youtube.com/watch?v=fM8XdC1EweU&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=23&pp=iAQB) |
|  | [Python Code for Mean, Median, Mode, SD< Variance and Range](https://www.youtube.com/watch?v=oYKuCCxlWbk&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=24&pp=iAQB) |
|  | [How Weights are Increased in Boosting| Ensemble Learning](https://www.youtube.com/watch?v=nr7gNJ95geI&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=25&pp=iAQB) |
|  | [BAGGING vs BOOSTING vs STACKING in Ensemble Learning](https://www.youtube.com/watch?v=j9jGLwPa6_E&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=26&pp=iAQB) |
|  | [Bayes Theorem and Total Probability with Examples](https://www.youtube.com/watch?v=SktJqrYereQ&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=27&pp=iAQB) |
|  | [Cross Validation in Machine Learning with Examples](https://www.youtube.com/watch?v=v6DtYYafrWQ&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=28&pp=iAQB) |
|  | [Pearson’s Correlation Coefficient | Supervised Learning | Data Science and ML](https://www.youtube.com/watch?v=9Zzqb82lkcU&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=29&pp=iAQB) |
|  | [kNN (k Nearest Neighbor) Numerical Examples | Supervised Learning](https://www.youtube.com/watch?v=mjoAoX--2fg&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=30&pp=iAQB) |
|  | [Decision Tree Example | Calculate Entropy, Information Gain | Supervised Learning](https://www.youtube.com/watch?v=DnhVLfjlGXE&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=31&pp=iAQB) |
|  | [Single Linkage Clustering Example | Unsupervised Learning](https://www.youtube.com/watch?v=CcPzgFFE_pY&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=32&pp=iAQB) |
|  | [Token and Parameters in Llama3 META Models | 8B and 70B Parameters Model | GPT](https://www.youtube.com/watch?v=UcFhiOtNHsQ&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=33&pp=iAQB) |
|  | [What is Data Preprocessing and Data Clearing | Various Techniques with Examples](https://www.youtube.com/watch?v=tDu_KIlXaB0&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=34&pp=iAQB) |
|  | [How to Deal with Missing Values in Dataset | Data Processing and Clearing, Imputation](https://www.youtube.com/watch?v=KfC7VfDfn8I&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=35&pp=iAQB) |
|  | [kNN Imputation with Examples | Data Preprocessing and Data Clearing](https://www.youtube.com/watch?v=bRWNJjzrZ-w&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=36&pp=iAQB) |
|  | [Fit() and Transfer() Method | Data Preprocessing](https://www.youtube.com/watch?v=f3n-SZzPu7U&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=37&pp=iAQB) |
|  | [Feature Extraction in Data Preprocessing](https://www.youtube.com/watch?v=lzWcVVCXMfo&list=PLxCzCOWd7aiEXg5BV10k9THtjnS48yI-T&index=38&pp=iAQB) |
| **PART: 01** | **Pattern Recognition and Machine Learning** |
|  | [Introduction](https://www.youtube.com/watch?v=DcWiJam7cGc&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=1&pp=iAQB) |
|  | [Polynomial Curve Fitting](https://www.youtube.com/watch?v=9HzpKVaKo-k&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=2&pp=iAQB) |
|  | [Probability Theory](https://www.youtube.com/watch?v=NqXirmIWS7s&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=3&pp=iAQB) |
|  | [Probability Densities](https://www.youtube.com/watch?v=1tNKZH2VW8Q&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=4&pp=iAQB) |
|  | [Expectation and Covariance](https://www.youtube.com/watch?v=xEa57gjkhbY&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=5&pp=iAQB) |
|  | [Bayesian Probabilities](https://www.youtube.com/watch?v=GrEzgnMcJ_s&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=6&pp=iAQB) |
|  | [The Gaussian Distribution](https://www.youtube.com/watch?v=3pmpTADXJ8s&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=7&pp=iAQB) |
|  | [Curve Fitting Re-visited](https://www.youtube.com/watch?v=TRwAzuuhecc&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=8&pp=iAQB) |
|  | [Bayesian Curve Fitting](https://www.youtube.com/watch?v=y0-K9oCWMvs&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=9&pp=iAQB) |
|  | [Model Selection](https://www.youtube.com/watch?v=bbt-QvK7m9U&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=10&pp=iAQB) |
|  | [The Curse of Dimensionality](https://www.youtube.com/watch?v=TR2bA-T-ac8&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=11&pp=iAQB) |
|  | [Decision Theory](https://www.youtube.com/watch?v=0_18TPzNQn8&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=12&pp=iAQB) |
|  | [Minimizing the Misclassification Rate](https://www.youtube.com/watch?v=1F1w-Epb9Mg&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=13&pp=iAQB) |
|  | [Minimizing the Expected Loss](https://www.youtube.com/watch?v=lNVJ6nskaAE&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=14&pp=iAQB) |
|  | [The Reject Option](https://www.youtube.com/watch?v=GFr7qwDw35U&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=15&pp=iAQB) |
|  | [Inference and Decision](https://www.youtube.com/watch?v=RF89ZRPY6NE&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=16&pp=iAQB) |
|  | [Loss Functions for Regression](https://www.youtube.com/watch?v=8CoNoy7pbMg&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=17&pp=iAQB) |
|  | [Information Theory Part-1 – Entropy is Average Surprise](https://www.youtube.com/watch?v=co7AuELzaG4&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=18&pp=iAQB) |
|  | [Information Theory Part-3 – Differential Entropy](https://www.youtube.com/watch?v=pEbmc73Sr9w&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=19&pp=iAQB) |
|  | [Differential Entropy of the Gaussian – Exercise 1.35](https://www.youtube.com/watch?v=1crOEVlM42M&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=20&pp=iAQB) |
|  | [Information Theory Part-4 – Maximum Entropy Distributions](https://www.youtube.com/watch?v=4X7eutF-870&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=21&pp=iAQB) |
|  | [Information Theory Part 5 – Maximum Entropy Showdown](https://www.youtube.com/watch?v=iCuDn3_Vhgs&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=22&pp=iAQB) |
|  | [Information Theory Part 6 – Conditional Entropy](https://www.youtube.com/watch?v=jlf81oD-3nw&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=23&pp=iAQB) |
|  | [Convexity and Jensen’s Inequality](https://www.youtube.com/watch?v=Jsq4YGqKOVA&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=24&pp=iAQB) |
|  | [Relative Entropy and Mutual Information](https://www.youtube.com/watch?v=lyR4Twm4_W0&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=25&pp=iAQB) |
|  | [Proof of the Non-Negativity of the Kullback-Leibler Divergence](https://www.youtube.com/watch?v=ZBuv9cEbZ-g&list=PLWMBgIqOUbrlvf4osKxJyZ7kMbSuIPEyO&index=26&pp=iAQB) |

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| Natural Language Processing (NLP) | |
| **PART: 01** |  |
|  | [Introduction](https://www.youtube.com/watch?v=R-AG4-qZs1A&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=1&pp=iAQB) |
|  | [Why NLP is Booming Right Now](https://www.youtube.com/watch?v=3y2-IaBeIs0&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=2&pp=iAQB) |
|  | [Regex For NLP](https://www.youtube.com/watch?v=lK9gx4q_vfI&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=3&pp=iAQB) |
|  | [Three Category of Techniques for NLP](https://www.youtube.com/watch?v=nknYY32RGXQ&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=4&pp=iAQB) |
|  | [NLP Tasks](https://www.youtube.com/watch?v=In7jB8TUGPA&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=5&pp=iAQB) |
|  | [NLP Pipeline](https://www.youtube.com/watch?v=S3EId9uatxI&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=6&pp=iAQB) |
|  | [Spacy vs NLTK](https://www.youtube.com/watch?v=h2kBNEShsiE&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=7&pp=iAQB) |
|  | [Tokenization in Spacy](https://www.youtube.com/watch?v=_lR3RjvYvF4&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=8&pp=iAQB) |
|  | [Language Processing Pipeline in Spacy](https://www.youtube.com/watch?v=hKK59rfpXL0&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=9&pp=iAQB) |
|  | [Stemming and Lemmatization](https://www.youtube.com/watch?v=HHAilAC3cXw&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=10&pp=iAQB) |
|  | [Part of Speech POS Tagging](https://www.youtube.com/watch?v=gdHWoQWZGkk&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=11&pp=iAQB) |
|  | [Named Entity Recognition (NER)](https://www.youtube.com/watch?v=2XUhKpH0p4M&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=12&pp=iAQB) |
|  | [Text Representation Basics](https://www.youtube.com/watch?v=_3ahmI5vpKY&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=13&pp=iAQB) |
|  | [Text Representation: Labe and One Hot Encoding](https://www.youtube.com/watch?v=2d8iP2_cS-U&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=14&pp=iAQB) |
|  | [Text Representation Using Bag Of Words (BOW)](https://www.youtube.com/watch?v=Yt1Sw6yWjlw&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=15&pp=iAQB) |
|  | [Stop Words: NLP Tutorial For Beginners](https://www.youtube.com/watch?v=vUPAOU2NPls&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=16&pp=iAQB) |
|  | [Text Representation Using Bag of N-Grams](https://www.youtube.com/watch?v=nZromH6F7R0&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=17&pp=iAQB) |
|  | [Text Representation Using TF-IDF](https://www.youtube.com/watch?v=ATK6fm3cYfI&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=18&pp=iAQB) |
|  | [Text Representation Using Work Embedding](https://www.youtube.com/watch?v=Do8cVbx-HOs&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=19&pp=iAQB) |
|  | [Word Vectors in Spacy Overview](https://www.youtube.com/watch?v=vyohzuTkty8&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=20&pp=iAQB) |
|  | [News Classification Using Spacy](https://www.youtube.com/watch?v=ibi5hvw6f3g&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=21&pp=iAQB) |
|  | [Word Vectors in Gensim Overview](https://www.youtube.com/watch?v=0r2NJdalzDw&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=22&pp=iAQB) |
|  | [News Classification Using Gensim](https://www.youtube.com/watch?v=ZrgVlfNduj8&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=23&pp=iAQB) |
|  | [FastText Tutorial | Train Custom Word Vectors in FastText](https://www.youtube.com/watch?v=Br-Ozg9D4mc&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=24&pp=iAQB) |
|  | [FastText Tutorial | Text Classification Using FastText](https://www.youtube.com/watch?v=Cq_pbQYO3M8&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=25&pp=iAQB) |
|  | [Introduction to Chatbots](https://www.youtube.com/watch?v=ZeoqOybAzdc&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=26&pp=iAQB) |
|  | [End-to-End NLP Project | Build a Chat-bot in Dialog-flow](https://www.youtube.com/watch?v=2e5pQqBvGco&list=PLeo1K3hjS3uuvuAXhYjV2lMEShq2UYSwX&index=27&pp=iAQB) |

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| Deep Learning (MIT 6.S191) | |
| **PART: 01** |  |
|  | [MIT Introduction to Deep Learning](https://www.youtube.com/watch?v=ErnWZxJovaM&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=1&pp=iAQB) |
|  | [Recurrent Neural Networks, Transformers, and Attention](https://www.youtube.com/watch?v=dqoEU9Ac3ek&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=2&pp=iAQB) |
|  | [Convolutional Neural Networks](https://www.youtube.com/watch?v=2xqkSUhmmXU&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=3&pp=iAQB) |
|  | [Deep Generative Modeling](https://www.youtube.com/watch?v=Dmm4UG-6jxA&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=4&pp=iAQB) |
|  | [Reinforcement Learning](https://www.youtube.com/watch?v=8JVRbHAVCws&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=5&pp=iAQB) |
|  | [Language Models and New Frontiers](https://www.youtube.com/watch?v=N1fbskTpwZ0&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=6&pp=iAQB) |
|  | [Google Generative AI for Media](https://www.youtube.com/watch?v=P7Hkh2zOGQ0&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=7&pp=iAQB) |
|  | [Building AI Models in the Wild](https://www.youtube.com/watch?v=ZAGiinWiFsE&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=8&pp=iAQB) |
|  | [Introduction to Deep Learning (2023)](https://www.youtube.com/watch?v=QDX-1M5Nj7s&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=9&pp=iAQB) |
|  | [Recurrent Neural Networks, Transformers, and Attention](https://www.youtube.com/watch?v=ySEx_Bqxvvo&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=10&pp=iAQB) |
|  | [Convolutional Neural Networks](https://www.youtube.com/watch?v=NmLK_WQBxB4&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=11&pp=iAQB) |
|  | [Deep Generative Modeling](https://www.youtube.com/watch?v=3G5hWM6jqPk&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=12&pp=iAQB) |
|  | [Robust and Trustworthy Deep Learning](https://www.youtube.com/watch?v=kIiO4VSrivU&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=13&pp=iAQB) |
|  | [Reinforcement Learning](https://www.youtube.com/watch?v=AhyznRSDjw8&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=14&pp=iAQB) |
|  | [Deep Learning New Frontiers](https://www.youtube.com/watch?v=FHeCmnNe0P8&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=15&pp=iAQB) |
|  | [Text-to-Image Generation](https://www.youtube.com/watch?v=SA-v6Op2kL4&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=16&pp=iAQB) |
|  | [The Modern Era of Statistics](https://www.youtube.com/watch?v=p1NpGC8K-vs&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=17&pp=iAQB) |
|  | [The Future of Robot Learning](https://www.youtube.com/watch?v=WHvWSYKGMDQ&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=18&pp=iAQB) |
|  | [Introduction to Deep Learning (2022)](https://www.youtube.com/watch?v=7sB052Pz0sQ&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=19&pp=iAQB) |
|  | [Recurrent Neural Networks and Transformers](https://www.youtube.com/watch?v=QvkQ1B3FBqA&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=20&pp=iAQB) |
|  | [Convolutional Neural Networks](https://www.youtube.com/watch?v=uapdILWYTzE&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=21&pp=iAQB) |
|  | [Deep Generative Modeling](https://www.youtube.com/watch?v=QcLlc9lj2hk&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=22&pp=iAQB) |
|  | [Reinforcement Learning](https://www.youtube.com/watch?v=-WbN61qtTGQ&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=23&pp=iAQB) |
|  | [Deep Learning New Frontiers](https://www.youtube.com/watch?v=wySXLRTxAGQ&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=24&pp=iAQB) |
|  | [LiDAR for Autonomous Driving](https://www.youtube.com/watch?v=NHZMfSMAHlo&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=25&pp=iAQB) |
|  | [Automatic Speech Recognition](https://www.youtube.com/watch?v=sR6_bZ6VkAg&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=26&pp=iAQB) |
|  | [AI for Science](https://www.youtube.com/watch?v=QZxcTZj0L-M&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=27&pp=iAQB) |
|  | [Uncertainty in Deep Learning](https://www.youtube.com/watch?v=veYq6EWZyVc&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=28&pp=iAQB) |
|  | [Introduction to Deep Learning (2021)](https://www.youtube.com/watch?v=5tvmMX8r_OM&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=29&pp=iAQB) |
|  | [Recurrent Neural Networks](https://www.youtube.com/watch?v=qjrad0V0uJE&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=30&pp=iAQB) |
|  | [Convolutional Neural Networks](https://www.youtube.com/watch?v=AjtX1N_VT9E&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=31&pp=iAQB) |
|  | [Deep Generative Modeling](https://www.youtube.com/watch?v=BUNl0To1IVw&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=32&pp=iAQB) |
|  | [Reinforcement Learning](https://www.youtube.com/watch?v=93M1l_nrhpQ&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=33&pp=iAQB) |
|  | [Deep Learning New Frontiers](https://www.youtube.com/watch?v=-boCMDouF2g&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=34&pp=iAQB) |
|  | [Evidential Deep Learning and Uncertainty](https://www.youtube.com/watch?v=toTcf7tZK8c&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=35&pp=iAQB) |
|  | [AI Bias and Fairness](https://www.youtube.com/watch?v=wmyVODy_WD8&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=36&pp=iAQB) |
|  | [Deep CPCFG for Information Extraction](https://www.youtube.com/watch?v=WkUYsVC3hKI&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=37&pp=iAQB) |
|  | [Taming Dataset Bias via Domain Adaptation](https://www.youtube.com/watch?v=eS-OHAHOqU0&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=38&pp=iAQB) |
|  | [Towards AI for 3D Content Creation](https://www.youtube.com/watch?v=lkkFcg9k9ho&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=39&pp=iAQB) |
|  | [AI in Healthcare](https://www.youtube.com/watch?v=cvXVK8oqU4Q&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=40&pp=iAQB) |
|  | [Introduction to Deep Learning (2020)](https://www.youtube.com/watch?v=njKP3FqW3Sk&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=41&pp=iAQB) |
|  | [Recurrent Neural Networks](https://www.youtube.com/watch?v=SEnXr6v2ifU&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=42&pp=iAQB) |
|  | [Convolutional Neural Networks](https://www.youtube.com/watch?v=iaSUYvmCekI&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=43&pp=iAQB) |
|  | [Deep Generative Modeling](https://www.youtube.com/watch?v=rZufA635dq4&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=44&pp=iAQB) |
|  | [Reinforcement Learning](https://www.youtube.com/watch?v=nZfaHIxDD5w&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=45&pp=iAQB) |
|  | [Deep Learning New Frontiers](https://www.youtube.com/watch?v=tfM_DdbGTLs&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=46&pp=iAQB) |
|  | [Neuro-symbolic AI](https://www.youtube.com/watch?v=4PuuziOgSU4&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=47&pp=iAQB) |
|  | [Generalizable Autonomy for Robot Manipulation](https://www.youtube.com/watch?v=8Kn4Gi8iSYQ&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=48&pp=iAQB) |
|  | [Neural Rendering](https://www.youtube.com/watch?v=BCZ56MU-KhQ&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=49&pp=iAQB) |
|  | [Machine Learning for Scent](https://www.youtube.com/watch?v=Z5Pw5eWItiw&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=50&pp=iAQB) |
|  | [Introduction to Deep Learning (2019)](https://www.youtube.com/watch?v=5v1JnYv_yWs&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=52&pp=iAQB) |
|  | [Recurrent Neural Networks](https://www.youtube.com/watch?v=_h66BW-xNgk&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=53&pp=iAQB) |
|  | [Convolutional Neural Networks](https://www.youtube.com/watch?v=H-HVZJ7kGI0&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=54&pp=iAQB) |
|  | [Deep Generative Modeling](https://www.youtube.com/watch?v=yFBFl1cLYx8&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=55&pp=iAQB) |
|  | [Deep Reinforcement Learning](https://www.youtube.com/watch?v=i6Mi2_QM3rA&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=56&pp=iAQB) |
|  | [Deep Learning Limitations and New Frontiers](https://www.youtube.com/watch?v=INja7C5_vqk&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=57&pp=iAQB) |
|  | [Visualization for Machine Learning (Google Brain)](https://www.youtube.com/watch?v=ulLx2iPTIcs&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=58&pp=iAQB) |
|  | [Biologically Inspired Neural Networks (IBM)](https://www.youtube.com/watch?v=4lY-oAY0aQU&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=59&pp=iAQB) |
|  | [Image Domain Transfer (NVIDIA)](https://www.youtube.com/watch?v=_MzaThb_jno&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=60&pp=iAQB) |
|  | [Introduction to Deep Learning (2018)](https://www.youtube.com/watch?v=JN6H4rQvwgY&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=61&pp=iAQB) |
|  | [Sequence Modeling with Neural Networks](https://www.youtube.com/watch?v=CznICCPa63Q&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=62&pp=iAQB) |
|  | [Convolutional Neural Networks](https://www.youtube.com/watch?v=NVH8EYPHi30&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=63&pp=iAQB) |
|  | [Deep Generative Modeling](https://www.youtube.com/watch?v=JVb54xhEw6Y&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=64&pp=iAQB) |
|  | [Deep Reinforcement Learning](https://www.youtube.com/watch?v=s5qqjyGiBdc&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=65&pp=iAQB) |
|  | [Deep Learning Limitations and New Frontiers](https://www.youtube.com/watch?v=l_yWLAQg7LU&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=66&pp=iAQB) |
|  | [Issues in Image Classification](https://www.youtube.com/watch?v=QYwESy6isuc&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=67&pp=iAQB) |
|  | [Faster ML Development with TensorFlow](https://www.youtube.com/watch?v=FkHWKq86tSw&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=68&pp=iAQB) |
|  | [Deep Learning – A Personal Perspective](https://www.youtube.com/watch?v=Z7YMDwzUTds&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=69&pp=iAQB) |
|  | [Beyond Deep Learning: Learning and Reasoning](https://www.youtube.com/watch?v=mNqVGB2HkXg&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=70&pp=iAQB) |
|  | [Computer Vision Meets Social Networks](https://www.youtube.com/watch?v=aFEnWHxUd7s&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&index=71&pp=iAQB) |

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| **PART: 01** | **Audio Signal Processing for Machine Learning** |
|  | [Audio Signal Processing for Machine Learning](https://www.youtube.com/watch?v=iCwMQJnKk2c&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=1&pp=iAQB) |
|  | [Sound and Waveforms](https://www.youtube.com/watch?v=bnHHVo3j124&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=2&pp=iAQB) |
|  | [Intensity, Loudness, and Timbre](https://www.youtube.com/watch?v=Jkoysm1fHUw&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=3&pp=iAQB) |
|  | [Understanding Audio Signals for Machine Learning](https://www.youtube.com/watch?v=daB9naGBVv4&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=4&pp=iAQB) |
|  | [Types of Audio Features](https://www.youtube.com/watch?v=ZZ9u1vUtcIA&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=5&pp=iAQB) |
|  | [How to Extract Audio Features](https://www.youtube.com/watch?v=8A-W1xk7qs8&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=6&pp=iAQB) |
|  | [Understanding Time Domain Audio Features](https://www.youtube.com/watch?v=SRrQ_v-OOSg&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=7&pp=iAQB) |
|  | [Extracting the Amplitude Envelope Feature from Scratch](https://www.youtube.com/watch?v=rlypsap6Wow&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=8&pp=iAQB) |
|  | [How to Extract Root-Mean Square Energy and Zero-Crossing Rate From Audio](https://www.youtube.com/watch?v=EycaSbIRx-0&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=9&pp=iAQB) |
|  | [Demystifying The Fourier Transform: The Intuition](https://www.youtube.com/watch?v=XQ45IgG6rJ4&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=10&pp=iAQB) |
|  | [Complex Numbers for Audio Signal Processing](https://www.youtube.com/watch?v=DgF4m0AWCgA&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=11&pp=iAQB) |
|  | [Defining The Fourier Transform with Complex Numbers](https://www.youtube.com/watch?v=KxRmbtJWUzI&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=12&pp=iAQB) |
|  | [Discrete Fourier Transform Explained Easily](https://www.youtube.com/watch?v=ZUi_jdOyxIQ&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=13&pp=iAQB) |
|  | [How to Extract the Fourier Transform with Python](https://www.youtube.com/watch?v=R-5uxKTRjzM&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=14&pp=iAQB) |
|  | [Sort-Time Fourier Transform Explained Easily](https://www.youtube.com/watch?v=-Yxj3yfvY-4&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=15&pp=iAQB) |
|  | [How to Extract Spectrograms Form Audio with Python](https://www.youtube.com/watch?v=3gzI4Z2OFgY&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=16&pp=iAQB) |
|  | [Mel Spectrograms Explained Easily](https://www.youtube.com/watch?v=9GHCiiDLHQ4&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=17&pp=iAQB) |
|  | [Extracting Mel Spectrograms with Python](https://www.youtube.com/watch?v=TdnVE5m3o_0&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=18&pp=iAQB) |
|  | [Mel-Frequency Cepstral Coefficients Explained Easily](https://www.youtube.com/watch?v=4_SH2nfbQZ8&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=19&pp=iAQB) |
|  | [Extracting Mel-Frequency Cepstral Coefficients with Python](https://www.youtube.com/watch?v=WJI-17MNpdE&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=20&pp=iAQB) |
|  | [Frequency –Domain Audio Features](https://www.youtube.com/watch?v=3-bjAoAxQ9o&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=21&pp=iAQB) |
|  | [Implementing Band Energy Ration in Python from Scratch](https://www.youtube.com/watch?v=8UJ8ZDR7yUs&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=22&pp=iAQB) |
|  | [Extracting Spectral Centroid and Bandwidth with Python](https://www.youtube.com/watch?v=j6NTatoi928&list=PL-wATfeyAMNqIee7cH3q1bh4QJFAaeNv0&index=23&pp=iAQB) |
| **PART: 01** | **Deep Learning for Audio Classification** |
|  | [DSP Background – Deep Learning for Audio Classification](https://www.youtube.com/watch?v=Z7YM-HAz-IY&list=PLhA3b2k8R3t2Ng1WW_7MiXeh1pfQJQi_P&index=1&pp=iAQB) |
|  | [Loading Data](https://www.youtube.com/watch?v=-GddLd2_0ok&list=PLhA3b2k8R3t2Ng1WW_7MiXeh1pfQJQi_P&index=2&pp=iAQB) |
|  | [Plotting and Cleaning](https://www.youtube.com/watch?v=mUXkj1BKYk0&list=PLhA3b2k8R3t2Ng1WW_7MiXeh1pfQJQi_P&index=3&pp=iAQB) |
|  | [Model Preparation](https://www.youtube.com/watch?v=rFt-3J0brE8&list=PLhA3b2k8R3t2Ng1WW_7MiXeh1pfQJQi_P&index=4&pp=iAQB) |
|  | [Convolutional Neural Network](https://www.youtube.com/watch?v=_nOu_CHogWw&list=PLhA3b2k8R3t2Ng1WW_7MiXeh1pfQJQi_P&index=5&pp=iAQB) |
|  | [Recurrent Neural Network](https://www.youtube.com/watch?v=Lq1rnT-MOos&list=PLhA3b2k8R3t2Ng1WW_7MiXeh1pfQJQi_P&index=6&pp=iAQB) |
|  | [Saving Data and Models](https://www.youtube.com/watch?v=H-X9vpARvhI&list=PLhA3b2k8R3t2Ng1WW_7MiXeh1pfQJQi_P&index=7&pp=iAQB) |
|  | [Predictions](https://www.youtube.com/watch?v=gfhx4dr6gJQ&list=PLhA3b2k8R3t2Ng1WW_7MiXeh1pfQJQi_P&index=8&pp=iAQB) |