

Chaos Theory

- Definition
- Characteristics of Systems
- Chaos Theory Applications

Game Theory

- Definition
- Players
- Strategies
- Payoffs
- Equilibrium Concepts
 - Nash Equilibrium
 - An Illustrative Advertising Game
 - Dominant Strategies and Nash Equilibria
 - Hotelling's Beach
 - Television Scheduling

Machine Talk

- Techniques
 - kNN algorithm
 - Winnow algorithm
 - Naïve Bayes classifier
 - Decision trees
 - Reinforcement learning (Rocchio algorithm)
 - Genetic algorithm
- Neural Networks
 - Input layer, hidden layer, output layer
 - Forward pass
 - Back Propagation
- Classification
 - Connections
 - Learning
- Hopfield Network
- Self-Organization
- Self-Organizing Networks
- How Is CNN/ConvNets different?
- LeNet-5 Architecture
- AlexNet Architecture - ImageNet 2012
- Case Study: GoogLeNet

Search Algorithm

- Types of Search Algorithm
 - PageRank Algorithm
 - Penguin Algorithm
 - Panda Algorithm
 - Hummingbird Algorithm
- Differences between old and new search engine methods
- Knowledge Graph
- Applications of Search Algorithm
 - Enterprise Search
 - Target Marketing
 - Performance Optimization
 - List Optimization
 - Indexing

Google TensorFlow

- Definition
- Data Flow Graph
- Google TensorFlow Basic Elements
 - Variable
 - Operation
 - Session
 - Placeholder
 - TensorBoard
- TensorBoard: Visual Learning
- MNIST Dataset
- TensorBoard
- Applications
 - Natural Language Processing
 - Image Processing
 - Geo-Coding Processing
 - Gaming Simulators
 - Real-World Game Data Processing
 - Intermittent Recurrent Data Processing

Machine Learning Implementations

- R
- IBM Watson
- Microsoft
- Oracle Advanced Analytics DB Option
- Enterprise Solutions

Machine Learning with Hadoop

- Tools for Data Preparation/Feature Engineering
- Apache Mahout
- More Machine Learning Interfaces for Hadoop

Visualization

- Key Points
 - Mashups
 - Lat-Long Processing
 - Semantic Processing
 - Machine Learning
 - Algorithms
 - Iterative Processing of Data
- Polymaps
- Data-Driven Documents
- Apache Tajo
 - Architecture
 - Query Federation
 - Storage and Data Format Support

Presto

- History
- Architecture
- Connectors
- Extensibility – plug-ins