

What do I know about AI

Tom Rochette <tom.rochette@coreteks.org>

July 24, 2025 — [daae079c](#)

0.1 Context

The goal of this activity is to write down all the keywords and concepts that I can relate to AI. It can help you figure out the things you are working around a lot and help you figure out where you might be lacking some knowledge.

If possible, I'd suggest you use a software such as [yEd](#) and instead of building a list like the one below, that you build a knowledge graph, such as my [AGI Concept Map](#). This will allow you to both think about the concepts you know, as well as their relations with other concepts you know about.

1 2015-09-07 (12:51 - 13:01)

- Supervised vs unsupervised
- Feature learning
- Performance metric/function
- Environment
- Actuators
- Regression
- Logistic function
- Neural networks
- Deep learning (layered NN)
- Komolgorov complexity
- Bayes theorem
- Dimension of a task environment
 - Partially vs fully observable
 - Single vs multi agent
 - Known vs unknown
 - Discrete vs continuous
 - Deterministic vs stochastic
- Turing machines
- Set theory
- Statistics/Probabilities
- Languages
- Automaton
- Finite state machines
- Search algorithms
 - String
 - Graph/Tree
- Genetic algorithm

2 2015-09-08 (21:19 - 21:29)

- Feature vector
- HMM (Hidden Markov Model)
- MCMC (Markov Chain Monte Carlo)
- Incompleteness theorem
- Completeness theorem
- Syntax
- Semantics
- Compiler
- Parse tree
- Context
- RNN (Recurrent Neural Networks)
- DBN (Deep Boltzman Machines)
- Gradient descent
- Optimization
- Alpha-beta pruning
- Minimax
- Backtracking
- Space/time bounded algorithms
- Self-referential
- Entropy
- Shannon theory of information
- Boolean algebra
- SAT solvers
- Predicate logic
- Liar's paradox
- Number theory
- K nearest neighbors
- Clustering
- Association learning
- Offline/Online learning
- Roko's basilisk
- OpenCog

3 2015-09-09 (22:56 - 23:06)

- Hill climbing
- Episodic vs sequential
- Model of the world/environment
- Problem + goal definition
- Intelligence
- Reasoning
- Planning
- Abstraction
- Natural language processing
- $P \stackrel{?}{=} NP$
- Complexity theory (space and time)
- Database
- Hashing
- Information organization
- Compression
- Architecture

- Storage
- Processing
- Algorithms
- Data structures
- Recursion
- Symbolic reasoning
- First/second order logic

4 2015-09-12 (19:49 - 19:59)

- Prim's algorithm
- Kruskal's algorithm
- Shortest path
- A*
- Simplified memory-bounded A* (SMA*)
- Recursive best first search (RBFS)
- Greedy algorithms
- Lazy algorithms
- Horn form
- Topology
- Manifolds
- Linear, quadratic, polynomial functions
- Linear vs non-linear functions
- Convex functions
- Integrals & derivatives
- Generalization
- Observation
- Education
- Training
- Reinforcement learning
- Knowledge base
- Computable vs non-computable
- Relations
- Injective, surjective, bijective, reflexive, transitive
- Axon
- Dendrites
- Potential
- Neurotransmitters
- Brain
- Nervous system
- Comprehension
- Understanding
- Curiosity
- Formal systems
- Proofs

5 2015-09-13 (18:55 - 19:05)

- Agent
- Sensors
- Functions
- Logic
- Hypothesis

- Experiment
- Knowledge
- Short & Long term memory
- Introspection
- Inspection
- Reverse-engineering
- Organization
- Layers
- Boosting
- k-means
- Classification
- Sum of squared errors (SSE)
- Dimensionality reduction
- Kernel functions
- Grammar
- Abstract syntax tree (AST)
- AIXI
- Solomonoff induction
- Expert system
- Languages
 - Regular
 - Context-free
 - Context-sensitive
 - Recursively enumerable
- Support vector machines (SVM)
- Game theory
- Decision theory
- Anomaly detection
- Training data
- Mealy machine
- Moore machine
- Grammar induction

6 2015-09-14 (23:04 - 23:14)

- Theorem
- Axiom
- Conjecture
- Self-organization
- Swarm intelligence
- Occam's razor
- Inference
- Pattern
- Pattern recognition
- Isomorphism
- Probability distribution
- Production
- Production system
- Approximation
- Underfitting/overfitting
- Feedforward neural network
- Backpropagation
- Heuristics

- Decision tree
- Tests
- Statistical analysis

7 See also

- [AGI Concept Map](#)