

Introdução à Inteligência Artificial

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DAS-5341: Inteligência Artificial
UFSC

Inteligência Artificial

- Lógica
- Sistemas Especialistas
- Lógica Nebulosa (Fuzzy logic/ controle fuzzy)
- Redes Bayesianas
- Computação evolutiva (algoritmos genéticos)
- Redes Neurais
- Aprendizagem por reforço

Videos

- ALVINN (1990)
 - Controle de veículo com Redes neurais
- DARPA Urban Challenge (2007)
- IBM's Watson
 - Processamento de linguagem natural

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Find a competition & download the training data. You don't need new software/skills to submit.



Build

Build a model using whatever methods you prefer and upload your predictions to Kaggle.



...Win!

Kaggle scores your solution in real time and you'll see your place on the live leaderboard.

Active Competitions

Active Competitions

All Competitions



The Hunt for Prohibited Content

Predict which ads contain illicit content

16 days
229 teams
\$25,000



Liberty Mutual Group - Fire Peril Loss Cost










Predict expected fire losses for insurance policies

18 days
482 teams
\$25,000






https://www.kaggle.com/c/avito-prohibited-content






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Active Competitions

		The Hunt for Prohibited Content Predict which ads contain illicit content	16 days 229 teams \$25,000
		Liberty Mutual Group - Fire Peril Loss Cost Predict expected fire losses for insurance policies	18 days 482 teams \$25,000
		Higgs Boson Machine Learning Challenge Use the ATLAS experiment to identify the Higgs boson	31 days 1365 teams \$13,000
		Display Advertising Challenge Predict click-through rates on display ads	39 days 316 teams \$16,000
		UPenn and Mayo Clinic's Seizure Detection C... Detect seizures in intracranial EEG recordings	4.4 days 205 teams \$8,000
		CIFAR-10 - Object Recognition in Images Identify the subject of 60,000 labeled images	2 months 183 teams Knowledge

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	Learning Social Circles in Networks Model friend memberships to multiple circles	2 months 75 teams Knowledge
	Sentiment Analysis on Movie Reviews Classify the sentiment of sentences from the Rotten Tomatoes dataset	6 months 366 teams Knowledge
Insert (noun?) here?	Billion Word Imputation Find and impute missing words in the billion word corpus	8 months 16 teams Knowledge
	Forest Cover Type Prediction Use cartographic variables to classify forest categories	8 months 345 teams Knowledge
	Bike Sharing Demand Forecast use of a city bikeshare system	9 months 473 teams Knowledge
	Random Acts of Pizza Predicting altruism through free pizza	9 months 99 teams Knowledge

101		Digit Recognizer Classify handwritten digits using the famous MNIST data	4 months 379 teams Knowledge
		Titanic: Machine Learning from Disaster Predict survival on the Titanic (with tutorials in Excel, Python, R, and an introduction to Random Forests)	4 months 1883 teams Knowledge
		Data Science London + Scikit-learn Scikit-learn is an open-source machine learning library for Python. Give it a try here!	4 months 141 teams Knowledge
		Facial Keypoints Detection Detect the location of keypoints on face images	4 months 34 teams Knowledge
		First steps with Julia Identify characters from Google Street View Pictures + tutorial with Julia.	16 months 16 teams Knowledge

História da Inteligência Artificial

1943-1955

Gestação da Inteligência Artificial

- Modelo de neurónio artificial de McCulloch e Pitts
- Aprendizagem de Hebb (1949)
- Primeiro Computador de rede neural, Minsky, 1951
- Simon: primeiro programa capaz de raciocionar, o provador lógico

1952-1969

Entusiasmo Inicial

- Grandes expectativas
- Computadores com comportamento inteligente
- Linguagem de alto nível LISP criada em 1958 por J. McCarthy

1966-1973

Uma dose de realidade

- Conhecimento específico de domínio não era aplicado
- Intratabilidade de muitos problemas
- Limitações de representação do perceptron (modelo de neurônio)

1969-1979

Sistemas baseados em conhecimento

- Mudar o foco de técnicas de resolução de problemas de propósito geral para técnicas com **informação específica do domínio**
 - Sistemas especialistas com **Regras Se-Então**
- Aplicações em medicina: sistemas de diagnóstico

1980 - hoje

IA se torna uma indústria

- O primeiro sistema especialista bem-sucedido, RI, foi desenvolvido e implantado na **Digital Equipment Corporation (DEC)**
 - O programa ajudava a configurar pedidos de novos computadores, e em 1986 ele era responsável por uma economia da ordem de US\$40 milhões de dólares
- Muitas empresas tinham seus sistemas especialistas

1986 - hoje

Retorno das Redes Neurais

- A pesquisa em redes neurais cresceu a partir da criação do algoritmo de retro-propagação (backpropagation) para redes neurais.
 - Problemas não-lineares agora podem ser modelados.