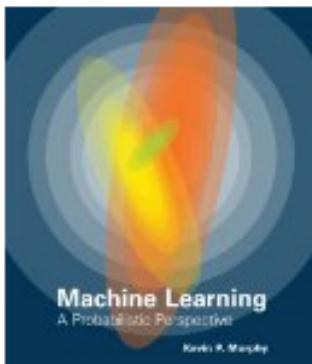


## Recommendations for You in Books



[Machine Learning: A Probabilistic...](#)

› Kevin P. Murphy

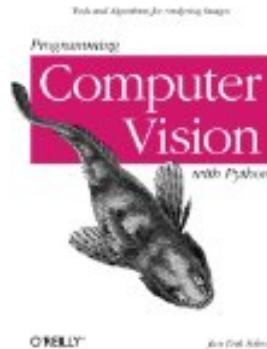
Hardcover

 (25)

\$90.00 **\$77.41**

[Why recommended?](#)

› [See more recommendations](#)



[Programming Computer Vision with...](#)

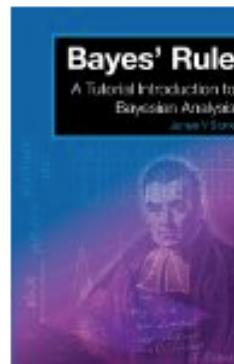
› Jan Erik Solem

Paperback

 (9)

\$39.99 **\$26.38**

[Why recommended?](#)



[Bayes' Rule: A Tutorial Introduction...](#)

› James V. Stone

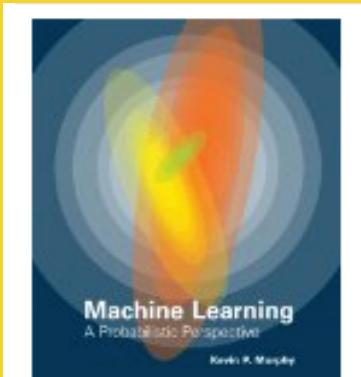
Paperback

 (9)

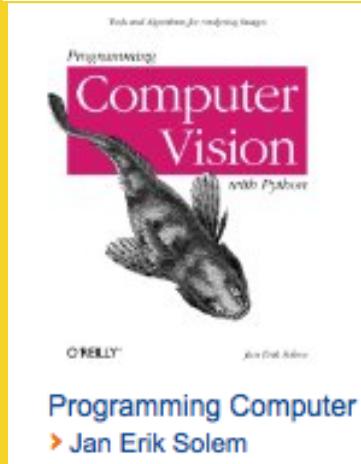
\$29.95 **\$26.96**

[Why recommended?](#)

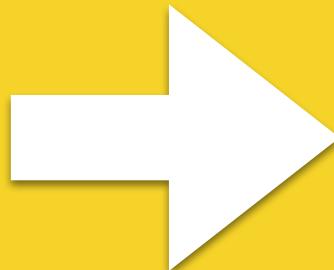
# Previsão de nota



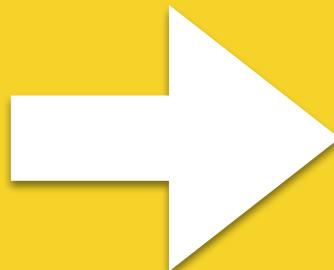
Machine Learning:  
A Probabilistic Perspective  
► Kevin P. Murphy



Programming Computer  
Vision with Python  
► Jan Erik Solem



8,5



7,0



in:spam



Gmail ▾



Mais ▾

1-

ESCREVER

Entrada (281)

Importante  
Enviados

Rascunhos (1)

Você está invisível.  
Ficar visível

Pesquisar pessoas...

Clique aqui para ativar as notificações na área de trabalho para o Gmail. [Saiba mais](#) [Ocultar](#)

ISTOÉ Dinheiro Online - Negocios - NEGÓCIOS - O timoneiro da MSC

Excluir todas as mensagens de spam agora (as mensagens que ficarem em Spam por mais de 30 dias se)

- |                          |  |  |                           |  |
|--------------------------|--|--|---------------------------|--|
| <input type="checkbox"/> |  |  | Vale Presente Master Card | Ganhe um Vale Presente. Corra que é por tempo limitado! - C  |
| <input type="checkbox"/> |  |  | Net Combo HD (2)          | Exclusivo: NET TV + NET Internet + NET Fone por apenas ...   |
| <input type="checkbox"/> |  |  | Costantin Media           | Saldão Walmart: Tvs, Celulares, Tablets, Notes e MUITAS OF   |
| <input type="checkbox"/> |  |  | iFamilyPharmacy Shop      | Dear hendrik, Only 48 hours Left For Amazing 67% OFF! - Hi   |
| <input type="checkbox"/> |  |  | Aquelas Coisas            | [Adultos] Picobong, luxo acessível. Vibros, plugs e estimula |

## EMAGRECI COM RAPIDEZ USANDO ESSAS CÁSULAS

Spam x

Isabela Campos <isabela-campos@reconstruir.info>  
para hendrik

18 de out (Há 1 dia) ⭐ ↻ ▾

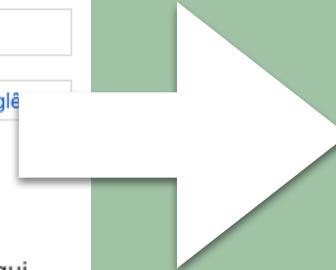
**A Por que esta mensagem foi colocada em "Spam"? Descobrimos que muitas mensagens de reconstruir.info são spam. Saiba mais**

Imagens não exibidas [Exibir imagens abaixo](#)

inglês ▾ > português ▾ Traduzir mensagem Desativar para: inglês

Olá, tudo bem? conhecendo voce e seus amigos vejo que alguns precisam dar uma boa  
enchugada no corpo.  
No meu caso consegui deixar de ser alvo de brincadeirinhas do tipo "tá fofinha hein" ou "tá  
gordinha hein!"  
Resolvi ler a fundo uma vasta reportagem sobre o assunto em uma pagina na internet e consegui  
diminuir 4 números no meu manequim.  
Para voce amigo ou amiga que precisa vou passar essa dica, mande para seus amigos também:  
**Leia atentamente: [www.fatredux.info](http://www.fatredux.info) e transforme as gorduras em saúde e corpo perfeito.**  
**Faça como eu, tinha 96kg gorda e feia... agora tenho 75kg e estou linda e deslumbrante...**  
Beijinho s e abraços aos amigos =\*

[deixar de receber](#) minhas dicas..



regular  
ou  
spam

Hello everybody!

Enjoy it! This is my handwriting.  
Annas Schrift.

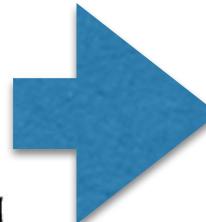
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z.

a b c d e f g h i j k l m n o p q r s t u v w x y z.

I can write numbers, too ;]  
0 1 2 3 4 5 6 7 8 9

Hope you like it.  
FlWpf.

Auch mit deutschen  
Buchstaben [ä ö ü äöü ääü]



Hello everybody!

Enjoy it!

This is my handwriting.  
Annas Schift.

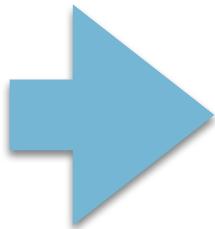
ABCDEF....

abcdef...

I can write numbers, too;  
01234...

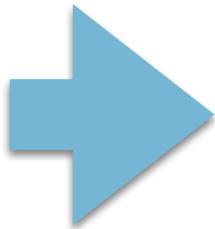
Hope you like it.

.....



4

(?)



H

(?)

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Google news

Top Stories

Christine O'Donnell » [White House official denies Tea Party-focused ad campaign](#)

CNNMoney - Ed Henry - 1 hour ago

Democratic sources say the White House is not considering an ad campaign tying Republicans to the Tea Party. Washington (CNN) — A top White House official says the White House is not considering what claims President Obama's political advisers are weighing a national Tea Party is misplacing the blame, former President Bill Clinton claims.

News.com - Ed Henry - 1 hour ago

GOP tea party backer defends Christine O'Donnell The Associated Press Atlanta Journal Constitution - Politics Daily - MyFox Washington DC - Salon all 726 news articles »

U.S. Stocks Climb After Recession Called Over, [Homeowners Gain](#)

MarketWatch - Kristina Peterson - 16 minutes ago

NEW YORK (MarketWatch) — US stocks climbed Monday, gaining speed after a solid job report and record weekly jobless claims, giving investors a boost of confidence in the gradual economic recovery.

Longest recession since 1930s ended in June 2009, group says

Los Angeles Times - 1 hour ago

Dow Jones Was Longer in Decades, Panel Confirms New York Times Wall Street Journal - AFP - CNN - USA Today all 46 news articles »

Deepwater Horizon: BP Oil Well, Site of National Catastrophe, Dies at One

BBC - Paul Mason - 22 minutes ago

The BP oil well, site of the Deepwater Horizon explosion that led to the worst oil spill in US history, died at one year old.

Video: Blowout Burnt Well at Kosmos in Gulf The Associated Press Weiss Doubts BP Would End Operations in Gulf of Mexico Video Bloomberg CNN International - Wall Street Journal (blog) - The Guardian - New York Times - AP - USA Today all 2,292 news articles »

RECESSION

San Francisco Bay Area - Edit

Clorox » Bay Oil Buzz: Clorox close to selling STP... San Jose Mercury News - 48 minutes ago all 24 articles » Google's official in Europe keeps the company burning its coal investment San Jose Mercury News - Bruce Newman - 1 hour ago

Jon Sylva » Man in Florida still unconscious as police investigate weekend shooting San Jose Mercury News - Robert Salonga - 48 minutes ago all 6 articles »

Spotlight

Sanchez reacts to EU humiliation Financial Times - Peggy Hollinger - September 20, 2010

Associated Press

Allen: Well is dead, but much Gulf Coast work remains

By the CNN Wire Staff September 20, 2010 — Updated 1317 GMT (2117 HKT)

Click to play

What next for Gulf oil spill?

STORY HIGHLIGHTS (CNN) — The ruptured Macondo well, a mile under the Gulf of

BP Kills Macondo, But Its Legacy Lives On

THE SOURCE

THE WALL STREET JOURNAL

Financial Services Transport Leisure Insurance Oil & Gas Sport Caught on the Web Betting Technology

SEARCH

September 20, 2010, 12:44 PM GMT

Article Comments (2)

Email Print Permalink Like Text +

By James Herron

BP confirmed late Sunday that the Macondo well that leaked almost five million barrels of oil into the Gulf of Mexico has been permanently sealed, but the well will continue to affect BP and the wider oil industry for many years.

The most immediate worry for BP and its shareholders is how the authorities will apportion blame for the spill. BP's own investigation

Associated Press

Fire boat response crews battled the blazing remnants of the off shore oil rig Deepwater Horizon April 21, 2010

Who Needs Plaza II Anyway

Will Banks Be Forced to Split Retail And Banking Arms?

Timing of Ratings Award Intriguing

BP Kills Macondo, But Its Legacy Lives On

We already Need a Samuel to Read ITT

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Allen: Well is dead, but much Gulf Coast work remains

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What next for Gulf oil spill?

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BP oil spill costs hits nearly \$10bn

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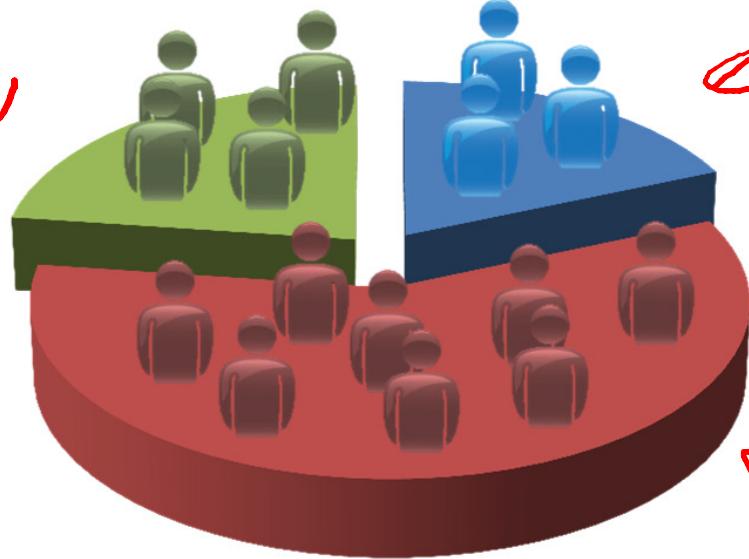
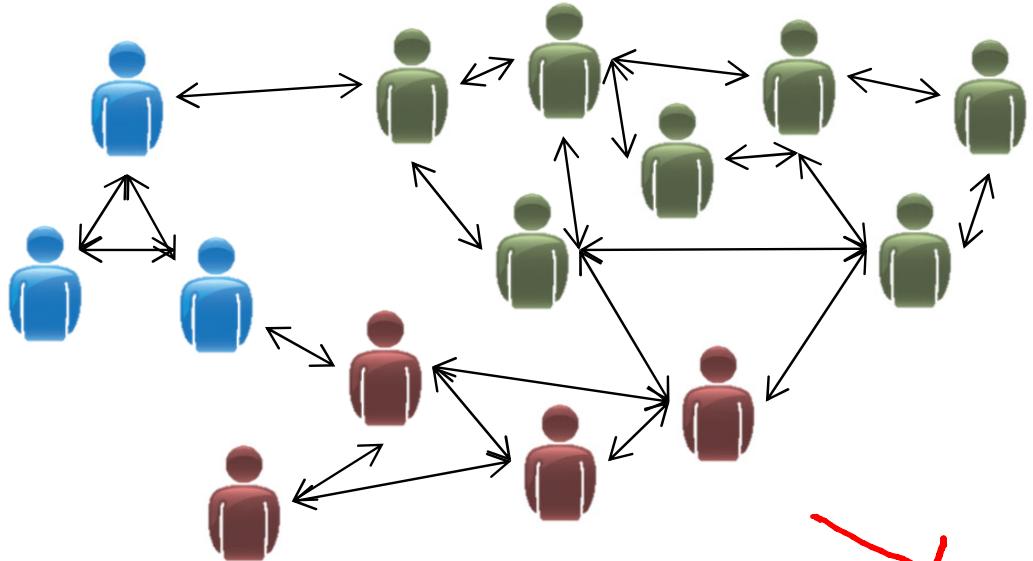
Business > BP

BP oil spill costs hits nearly \$10bn

BP has set up a \$20bn compensation fund after the Deepwater Horizon disaster, which has so far paid out 19,000 claims totaling more than \$240m

Julia Kollwee guardian.co.uk, Monday 20 September 2010 08.33 BST Article history

BP's costs for the Deepwater Horizon disaster have hit \$10bn. Photograph: UPI/Redux



O que estas aplicações  
possuem em **COMUM**?

# Algoritmo

IN → Out



IN →

dados

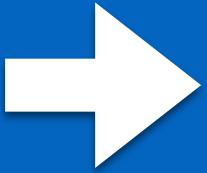


aprendizado



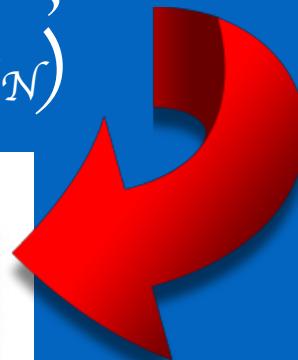
→ Out

$x$



**dados**  
 $(exe_1, y_1),$   
 $(exe_2, y_2),$   
 $\dots$ ,  
 $(exe_N, y_N)$

aprendizado



$y$

**dados**

$exe_1$   
 $(exe_2, y_2),$   
...  
 $(exe_N, y_N)$

$x \rightarrow y$

quais  
características  
são relevantes?

[vetor]

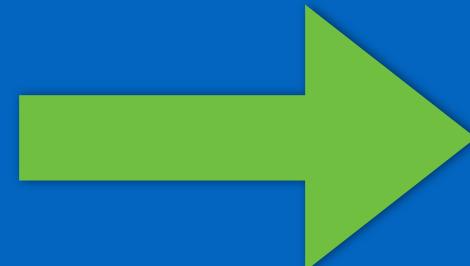
$\phi$

**dados**

*exe<sub>1</sub>*  
 $(exe_2, y_2),$   
...  
 $(exe_N, y_N)$

$\phi$

[abc@gmail.com](mailto:abc@gmail.com)



length > 10	: 1
fracOfAlpha	: 0.85
contains_@	: 1
endsWith_.com	: 1
endsWith_.org	: 0

$\phi$

length>10	:	1	:-1.2
fracOfAlpha	:	0.85	:0.6
contains_@	:	1	:3
endsWith_.com	:	1	:2.2
endsWith_.org	:	0	:1.4

peso  
da característica  
 $w$

-1.2

length>10 : 1

0.6

fracOfAlpha : 0.85

3

contains\_@ : 1

2.2

endsWith\_.com : 1

1.4

endsWith\_.org : 0

$$\mathbf{w} \cdot \phi(x) = \sum_{j=1}^d w_j \phi(x)_j$$

$$-1.2(1) + 0.6(0.85) + 3(1) + 2.2(1) + 1.4(0) = 4.51$$

o que é aprender ?

encontrar peso  
 $w$



Função alvo  
 $f : x \rightarrow y$

Dados  
 $(x_1, y_1), \dots, (x_N, y_N)$

Modelo de aprendizagem

Algoritmo de  
Aprendizagem  
 $\mathcal{A}$

Conjunto de hipóteses  
 $\mathcal{H}$

Hipótese escolhida  
 $g \approx f$

$$\mathcal{H} = \{h\} \quad g \in \mathcal{H}$$

”A computer program is said to learn from experience E with respect to some task T and some performance measure P, if its performance on T, as measured by P, improves with experience E.”

Tom Mitchell (1998)

"A computer program is said to learn from experience E with respect to some task T and some performance measure P, if its performance on T, as measured by P, improves with experience E."

**Question.** Suppose your email program watches which emails you do or do not mark as spam, and based on that learns how to better filter spam. What is the task T in this setting?

- a. Classifying emails as spam or not spam.
- b. Watching you label emails as spam or not spam.
- c. The number (or fraction) of emails correctly classified as spam/not spam.
- d. None of the above—this is not a machine learning problem.

# Modelos preditivos

Classificação  
predizer categoria

Rregressão  
predizer um valor

Métodos baseados em distância

Métodos probabilísticos

Métodos baseados em procura

Métodos baseados em otimização





Iris Setosa

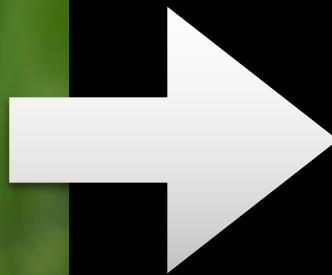


Iris Versicolor

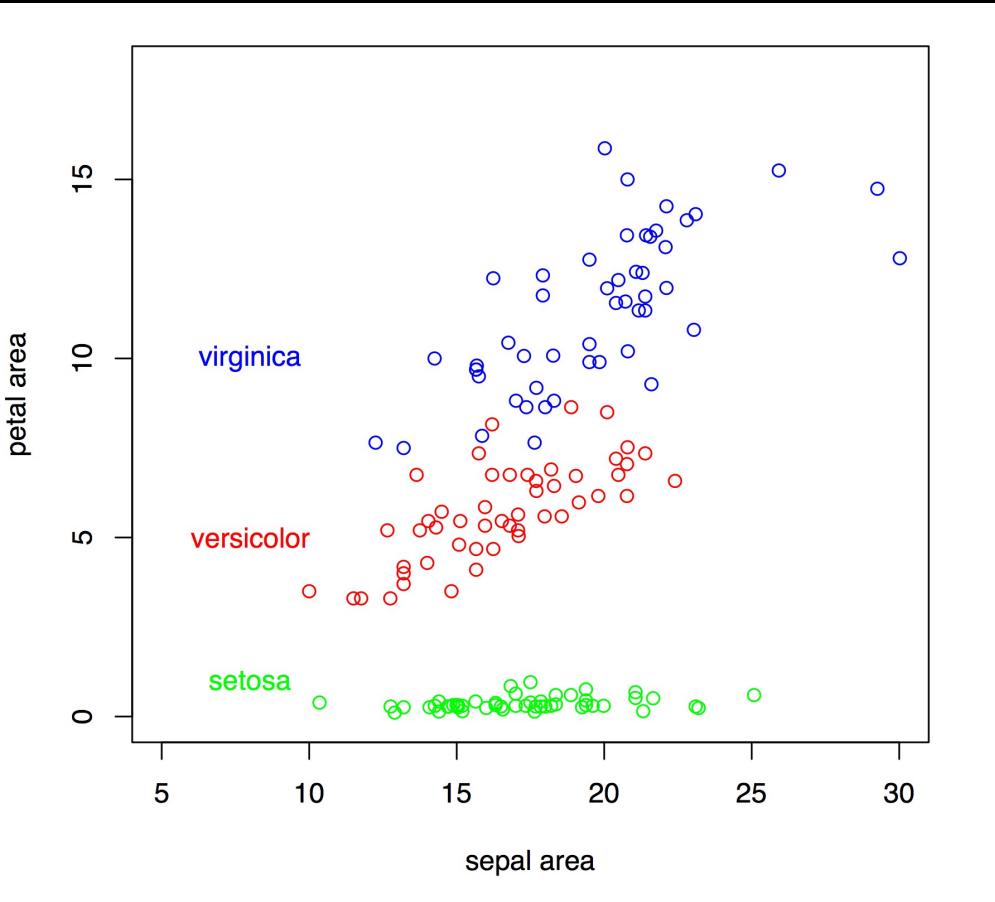


Iris Virginica

Como você faria para definir o tipo de uma flor colhida aleatoriamente?

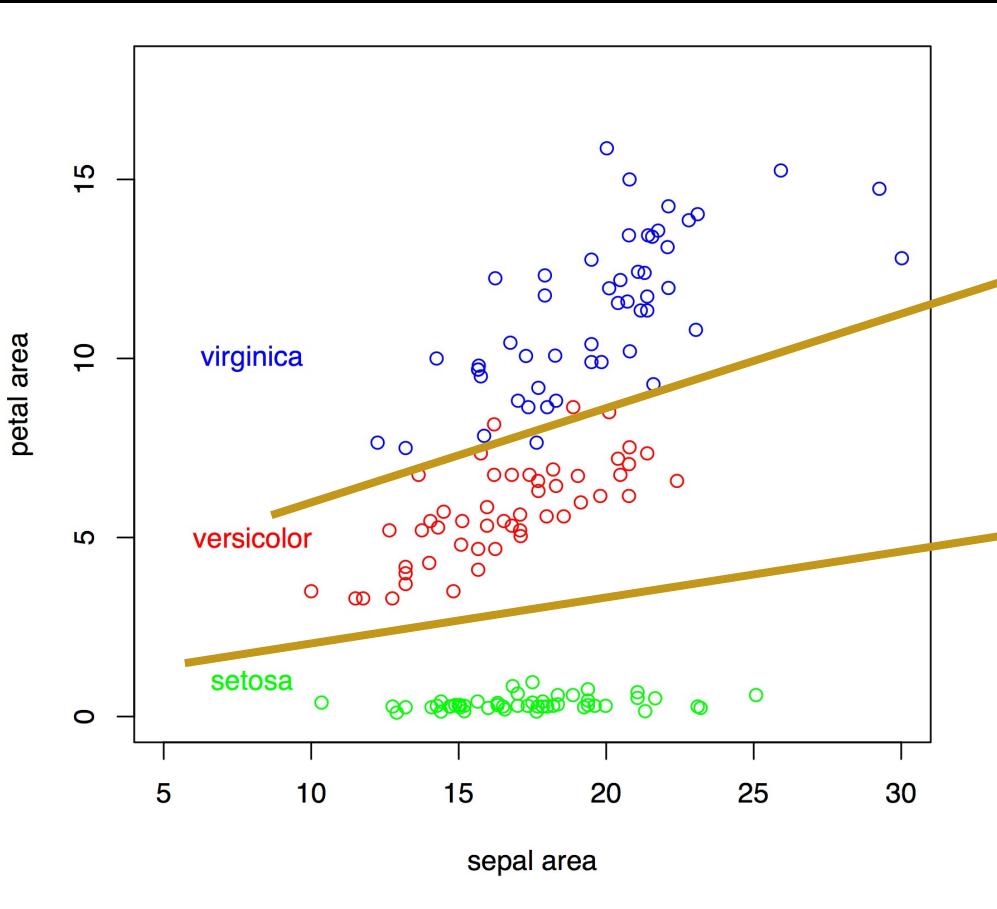


Iris Setosa?  
Iris Versicolor?  
Iris Virginica?



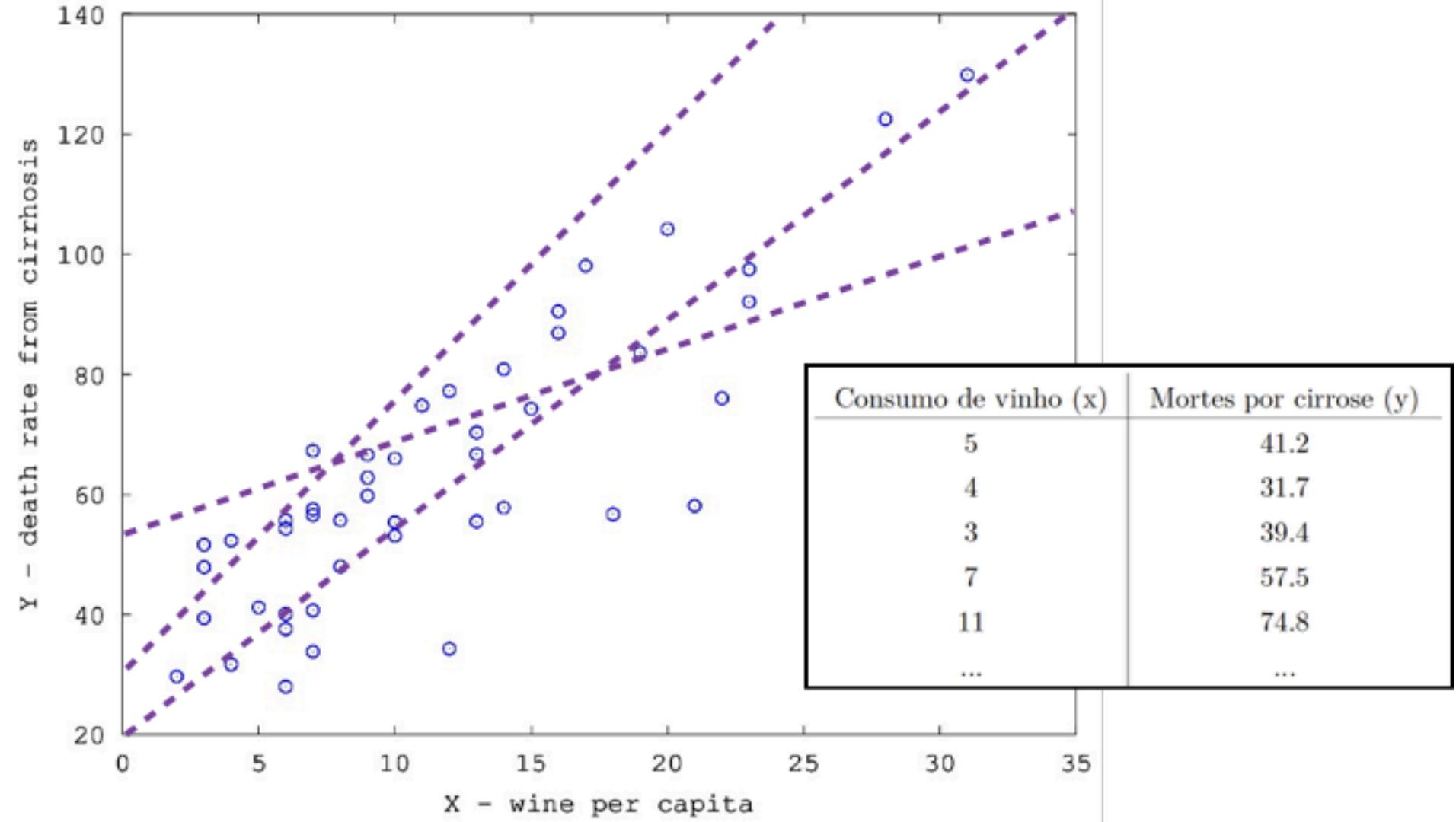
## O que já se conhece

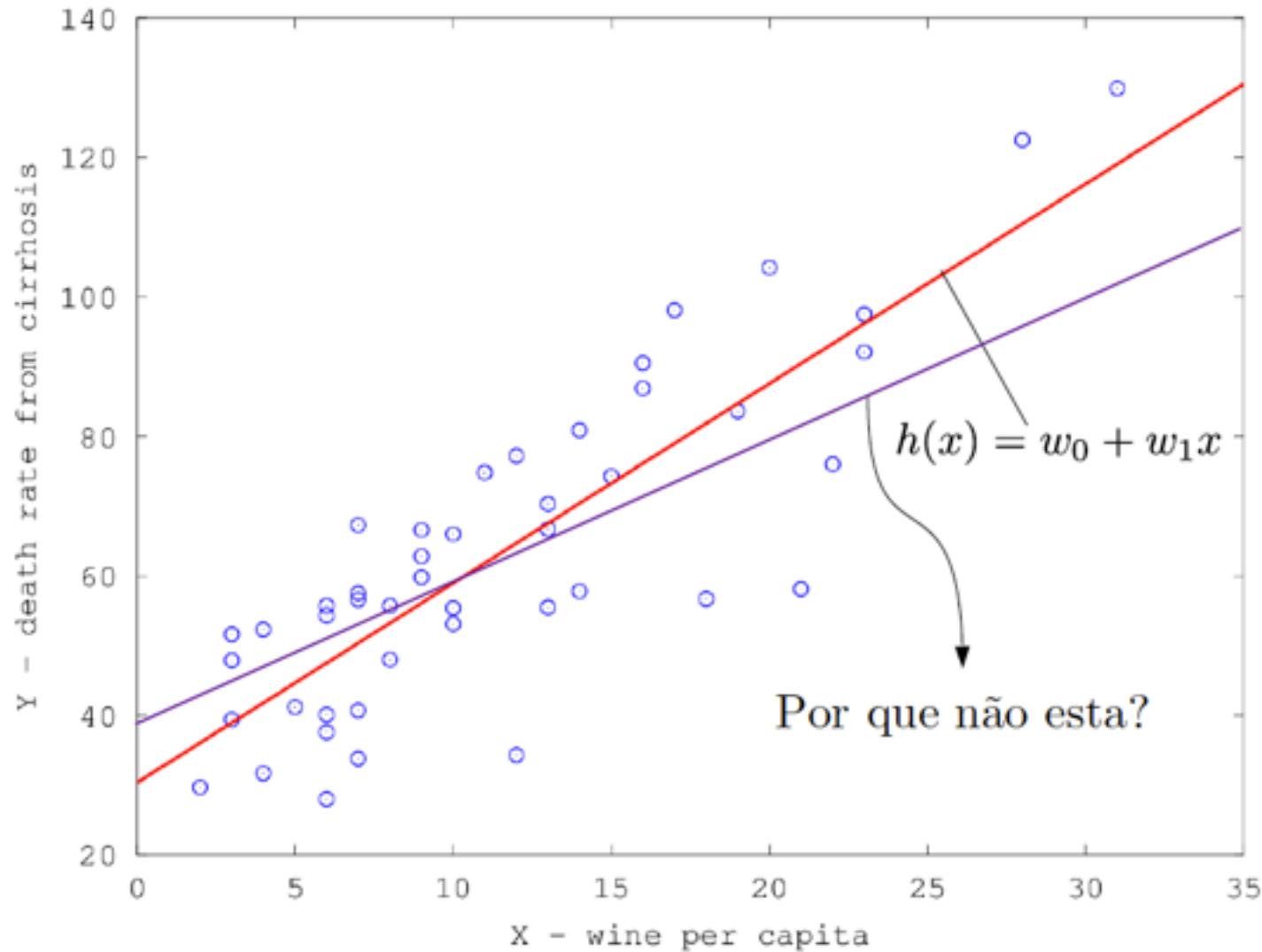
SL	SW	PL	PW	Especie
5.1	3.5	1.4	0.2	"setosa"
4.9	3	1.4	0.2	"setosa"
4.7	3.2	1.3	0.2	"setosa"
4.6	3.1	1.5	0.2	"setosa"
5	3.6	1.4	0.2	"setosa"
...				
7	3.2	4.7	1.4	"versicolor"
6.4	3.2	4.5	1.5	"versicolor"
6.9	3.1	4.9	1.5	"versicolor"
...				
6.3	3.3	6	2.5	"virginica"
5.8	2.7	5.1	1.9	"virginica"
7.1	3	5.9	2.1	"virginica"
...				



Discriminantes lineares

Considere agora outro tipo de problema....





**Question.** You're running a company, and you want to develop learning algorithms to address each of two problems.

Problem 1: You have a large inventory of identical items. You want to predict how many of these items will sell over the next 3 months.

Problem 2: You'd like software to examine individual customer accounts, and for each account decide if it has been hacked/compromised.

Should you treat these as classification or as regression problems?

- a. Treat both as classification problems.
- b. Treat problem 1 as a classification problem, problem 2 as a regression problem.
- c. Treat problem 1 as a regression problem, problem 2 as a classification problem.
- d. Treat both as regression problems.

# Modelos descritivos

Agrupamento  
descobrir categorias

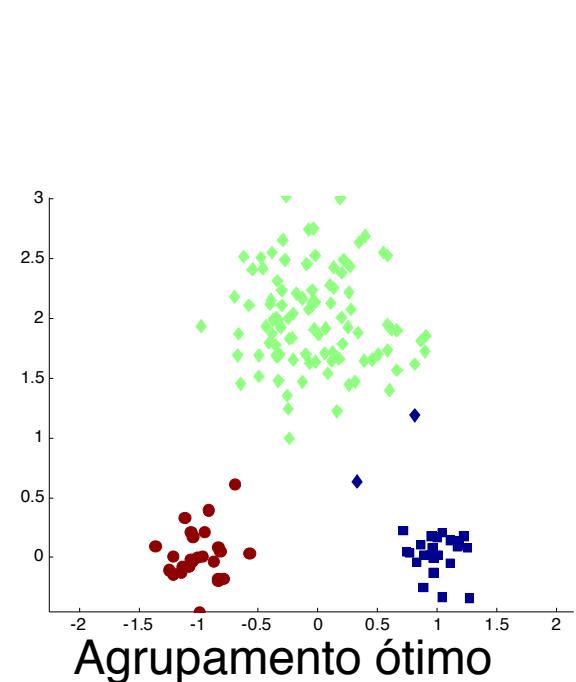
Sumarização  
resumir conteúdo

# Algoritmos **particionais**

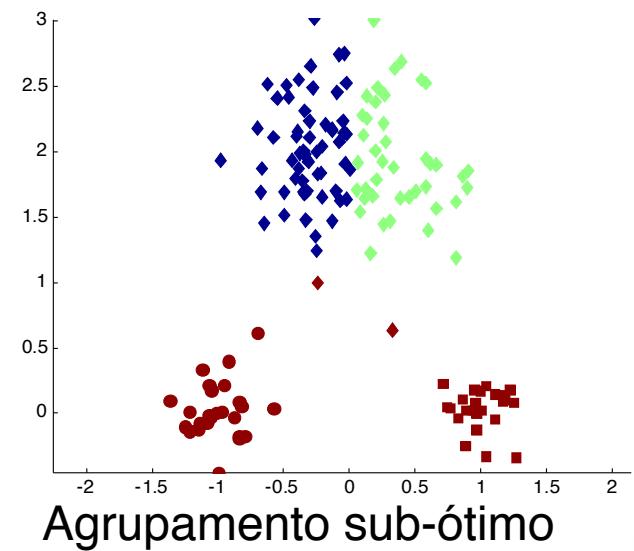
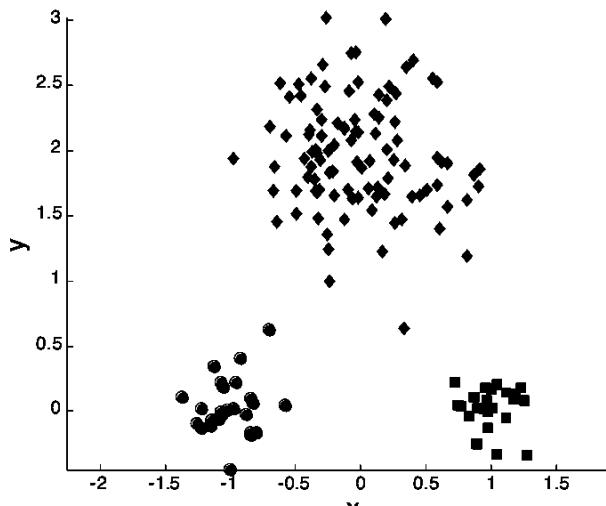
## Algoritmos baseados em **densidade**

## Algoritmos **hierárquicos**

## Pontos originais



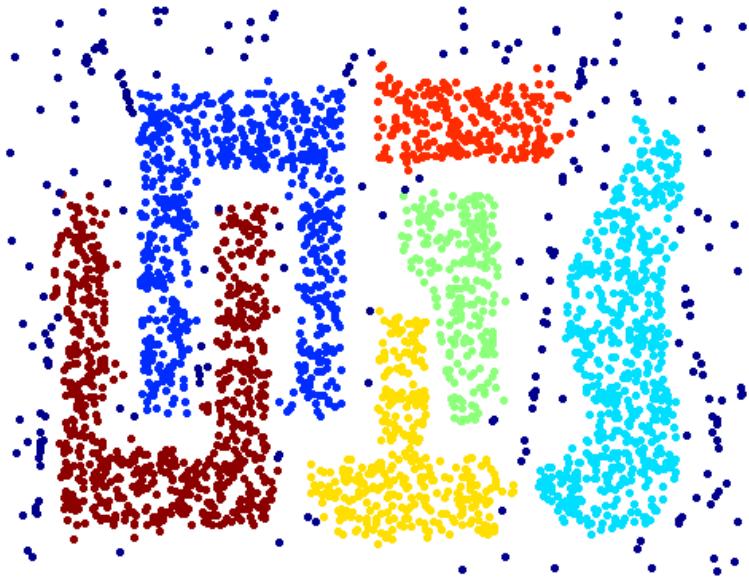
## Agrupamento ótimo



## Agrupamento sub-ótimo



Original Points



Clusters

**Question.** Of the following examples, which would you address using an unsupervised learning algorithm? (Check all that apply.)

- Given email labeled as spam/not spam, learn a spam filter.
- Given a set of news articles found on the web, group them into set of articles about the same story.
- Given a database of customer data, automatically discover market segments and group customers into different market segments.
- Given a dataset of patients diagnosed as either having diabetes or not, learn to classify new patients as having diabetes or not.

# Eight ways machine learning is already in your life (BBC News)

**Virtual personal assistants** - the likes of Siri, Alexa, Cortana and Google Assistant - are able to follow instructions because of **voice recognition**. The assistants learn over a number of conversations and in many different ways.

Recognize typical **spending patterns** and which characteristics of a transaction - location, amount, or timing - make it more or less likely to be **fraudulent**. When a transaction seems out of the ordinary, an alarm can be raised - and a message sent to the user.

**Better diagnoses**, for example to spot cancer and eye disease. Learning from **images** that have been labelled by doctors, computers can analyse new pictures of a patient's retina, a skin spot, or an image of cells taken under a microscope.

In **particle physics** it has allowed them to find patterns in immense data sets generated from the Large Hadron Collider at Cern. It was instrumental in the **discovery of the Higgs Boson**, for example, and is now being used to **search for "new physics"**.

In schools they can **track student performance** and develop **personal learning plans**.

They can help us **reduce energy usage** by making better use of resources.

**Improve care for the elderly** with **smart homes**.

In the area of transport, machine learning is powering **autonomous vehicles**.