

Introdução a Ciência de dados pro



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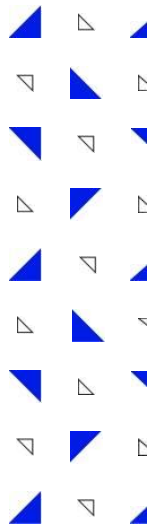
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Apresentação

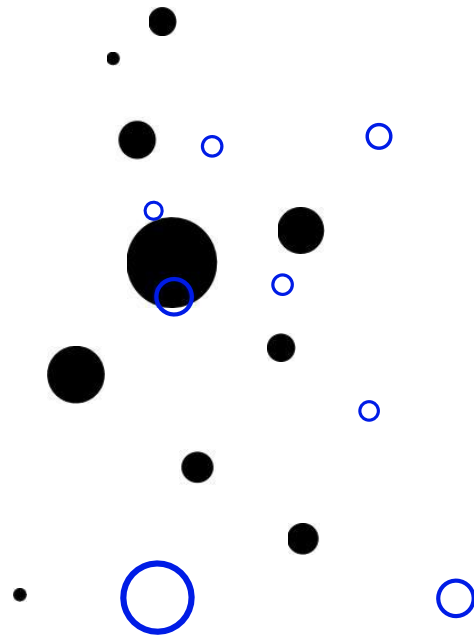


Dimas

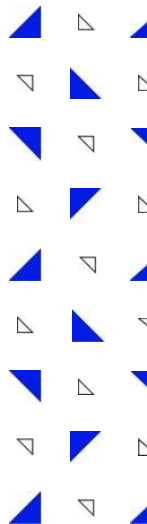
- Graduação e Mestrado em Estatística pela UFRJ
- Pesquisa em Estatística
- Laboratório de matemática aplicada
- globo esporte - growth hacking
- CDN Edge - Plataforma de vídeos



Overview do curso



- Revisão de tópicos importantes
- Lidando com o negócio
- Inteligência artificial, ética e responsabilidade
- Cientista e seu ambiente de trabalho
- Preparando o ambiente para o curso



Experimentação

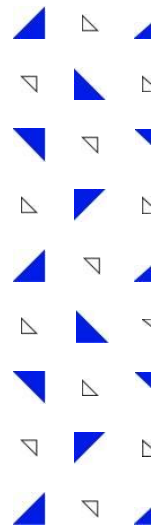
Inovação

Otimização

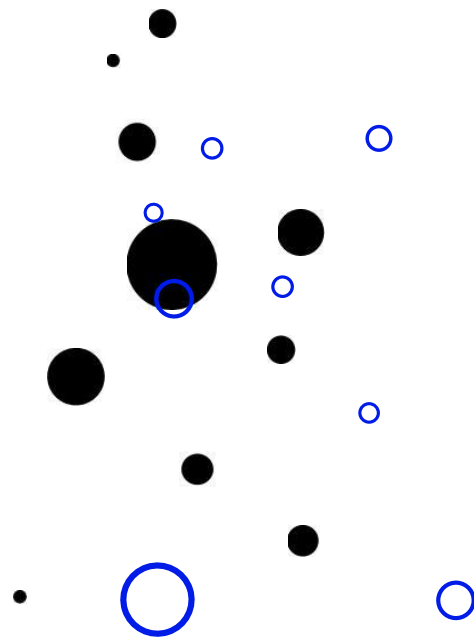
Agilidade

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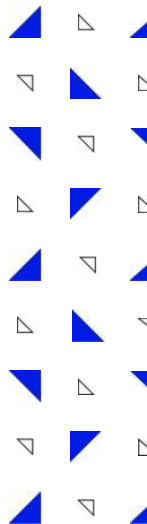
Revisão de tópicos importantes



Revisão de tópicos importantes

Regressão e classificação

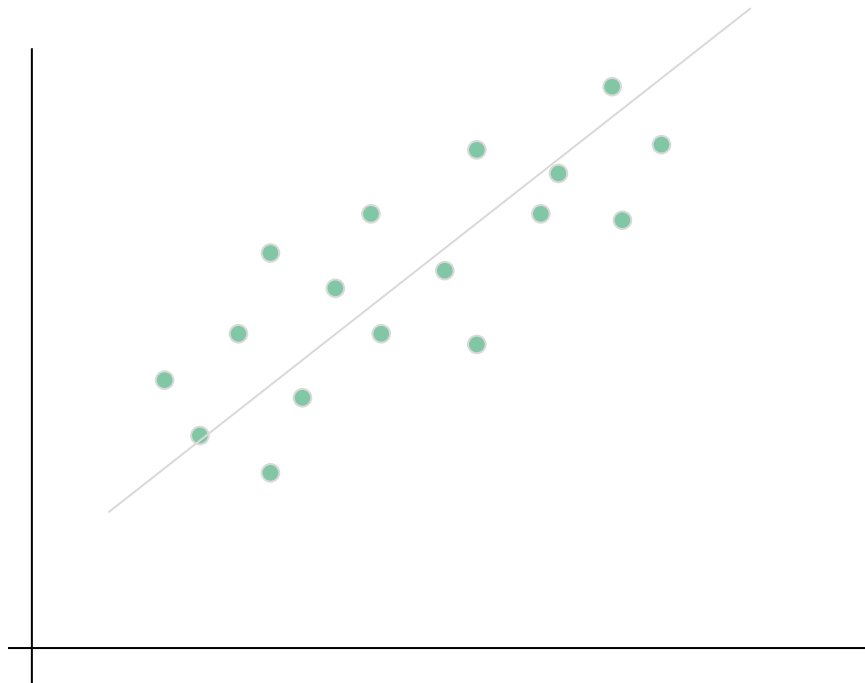
Avaliação do modelo



Revisão de tópicos importantes

Regressão

$$\mathbf{Y} = \mathbf{X}\boldsymbol{\beta} + \boldsymbol{\varepsilon}$$
$$\boldsymbol{\varepsilon} \sim N_n(\mathbf{0}, \sigma^2 \mathbf{I})$$



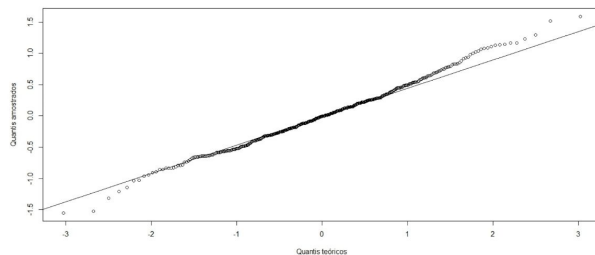
Revisão de tópicos importantes

Métricas

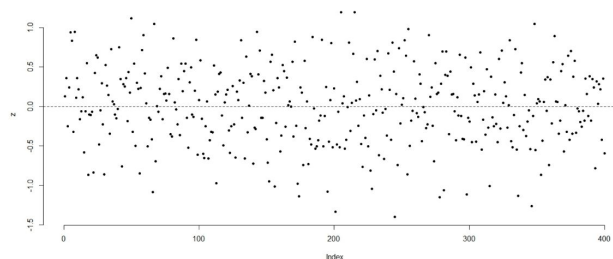
RMSE $\sqrt{\frac{\sum_{i=1}^N (x_i - \hat{x}_i)^2}{N}}$

R2 $1 - \frac{RSS}{TSS}$

Gráficos



q-q plot



resíduos

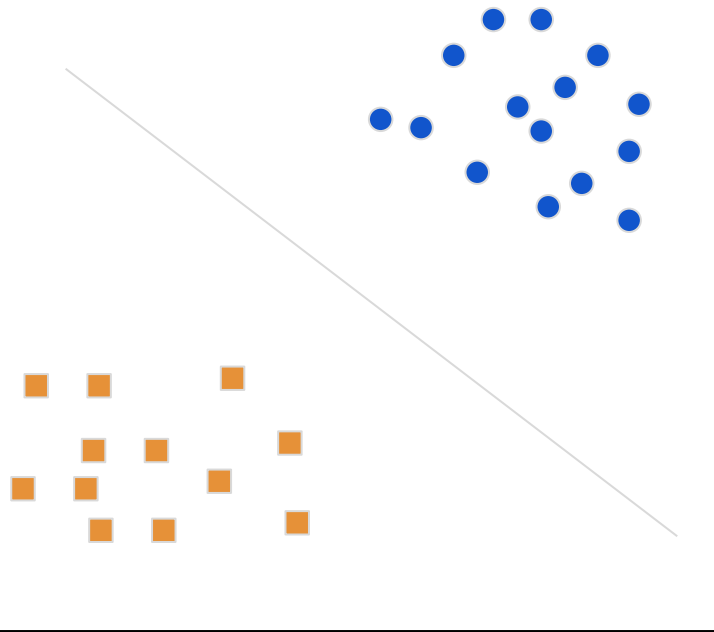
Revisão de tópicos importantes

Classificação

observação 1	●
observação 2	■
observação 3	●
observação 4	●
observação 5	■
...	■
observação n	■

Revisão de tópicos importantes

Classificação



Revisão de tópicos importantes

Avaliação

Métricas

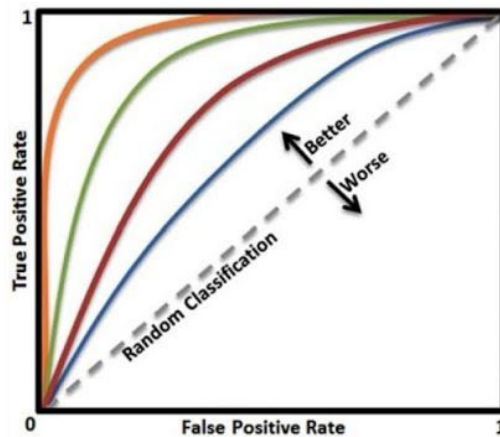
Precision

Recall

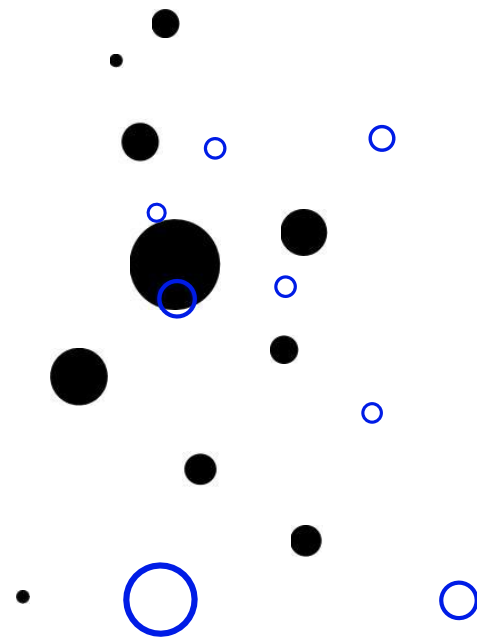
Accuracy

F1-Score

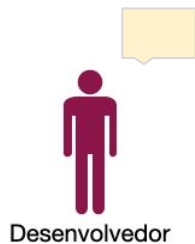
Gráficos



Lidando com o negócio



Lidando com o negócio



Desenvolvedor



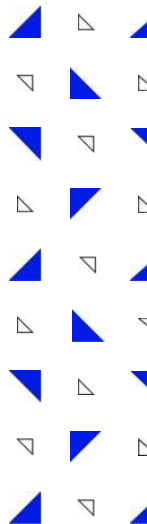
Gerente



Designer

???

Inteligência Artificial



Lidando com o negócio



Gerente



Designer



Designer

Problema: Nós produzimos muitas fotos e não somos capaz de reaproveitar esse material, uma vez que por dia são milhares de fotos e não temos nenhum tipo de organização em relação a isso. Como podemos conseguir organizar todas essas fotos e aproveitar esse conteúdo?



Desenvolvedor



Desenvolvedor



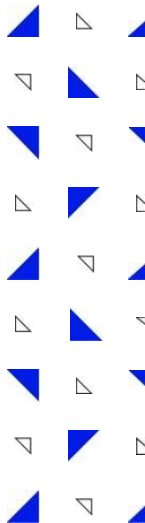
Desenvolvedor



Cientista de dados

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Lidando com o negócio



Gerente



Designer



Designer

Vamos contratar algumas pessoas para olhar manualmente essas fotos e anotar o que tem em cada uma. Um desenvolvedor pode fazer uma interface de pesquisa que utiliza essas tags geradas



Desenvolvedor



Desenvolvedor



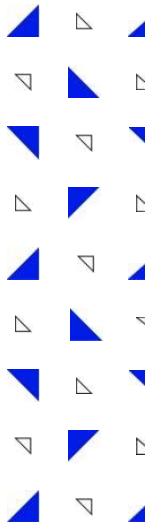
Desenvolvedor



Cientista de dados

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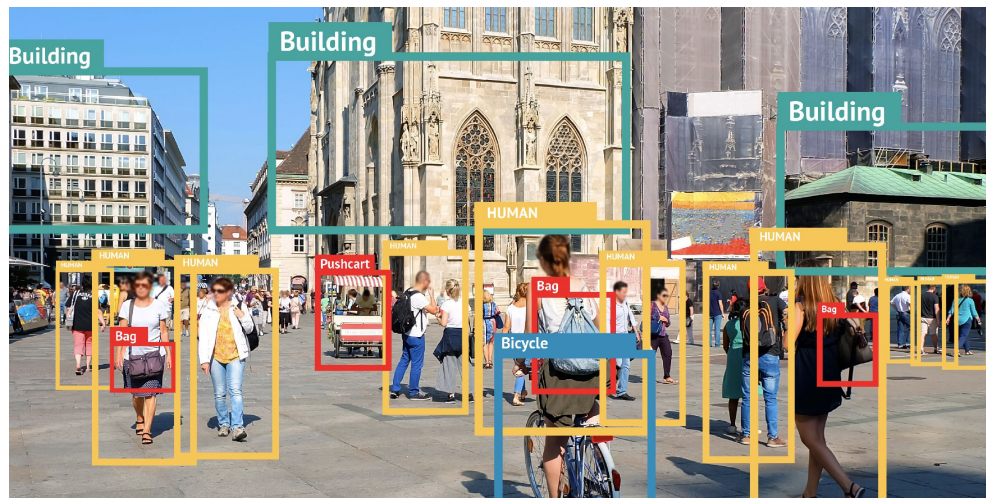
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Lidando com o negócio

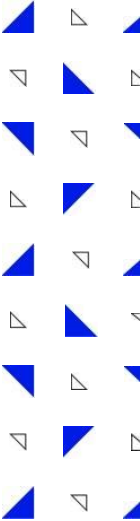


Cientista de dados

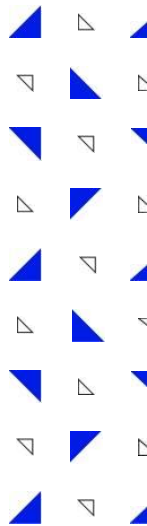
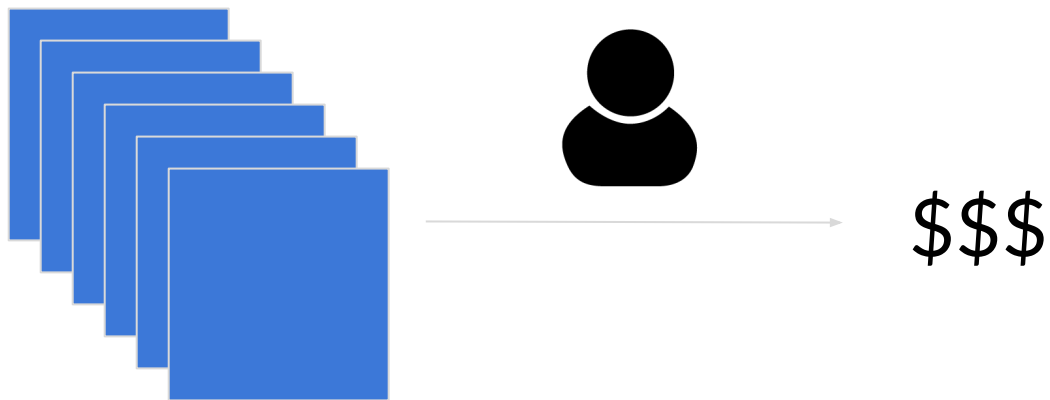


Lidando com o negócio

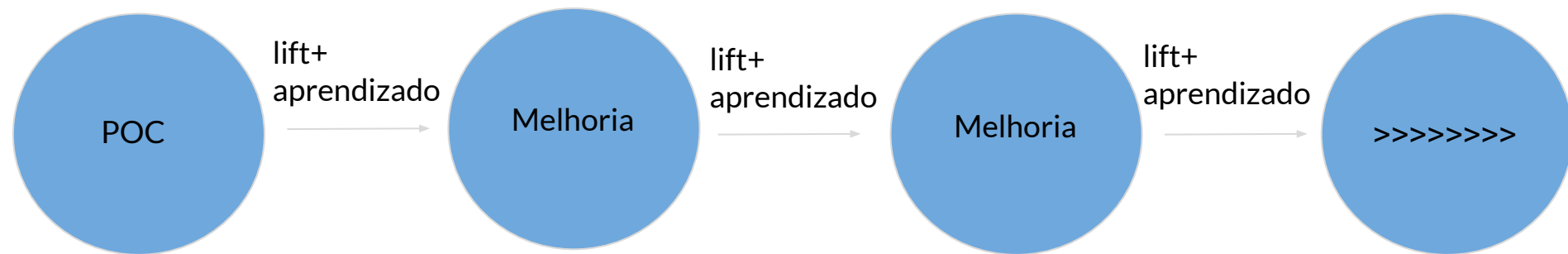
Expectativa



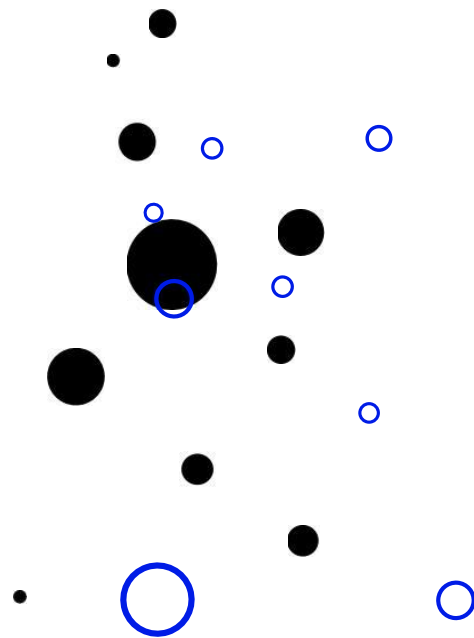
Lidando com o negócio



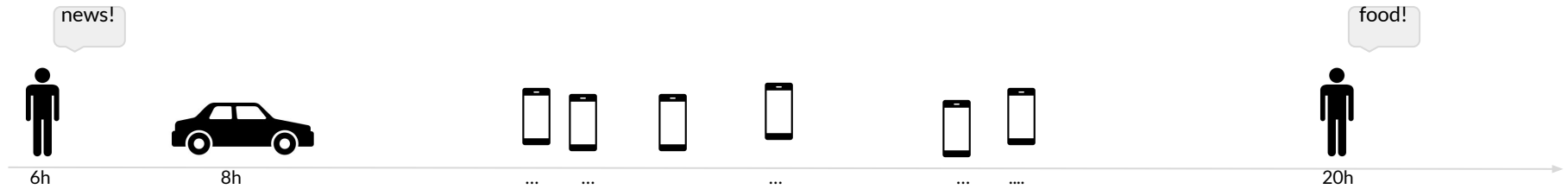
Lidando com o negócio



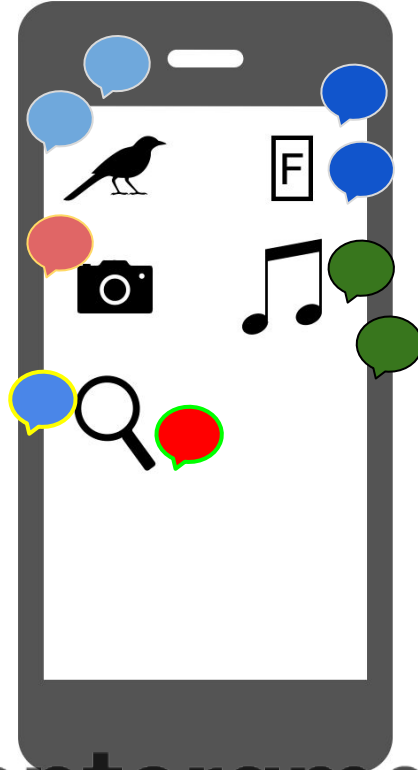
Inteligência Artificial: ética e responsabilidade



IA: ética e responsabilidade

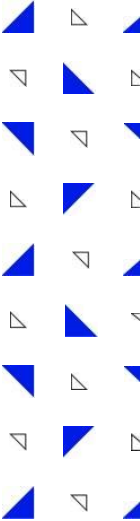


IA: ética e responsabilidade



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IA: ética e responsabilidade

Viés

antes



1 10



Eleanor Harding 🍷 @t... · 08/01/2018

Couple of weeks at home in SA and my gallery is now 80% cat photos. She's called Phish. She likes to mlem.



2 40

depois



1 10



Eleanor Harding 🍷 @t... · 08/01/2018

Couple of weeks at home in SA and my gallery is now 80% cat photos. She's called Phish. She likes to mlem.



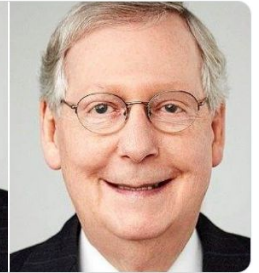
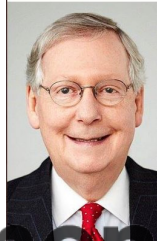
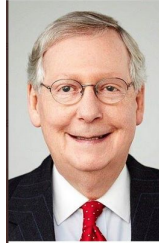
2 40

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IA: ética e responsabilidade

Viés?



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IA: ética e responsabilidade

Viés?

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Tech

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Twitter investigates racial bias in image previews

© 21 September



One user found that Twitter seemed to favour showing Mitch McConnell's face over Barack Obama's

Twitter is investigating after users discovered its picture-cropping algorithm sometimes prefers white faces to black ones.

Users noticed when two photos - one of a black face the other of a white one - were in the same post, Twitter often showed only the white face on mobile.

Twitter said it had tested for racial and gender bias during the algorithm's development.

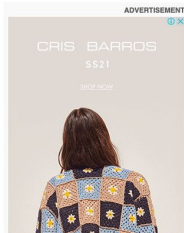
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Ethiopia conflict widens as airports attacked
The government says forces from the northern state of Tigray have fired on a neighbouring region.
1 hour ago

Biden takes Georgia to solidify victory
1 hour ago

The first 'second dude' in the White House
15 hours ago

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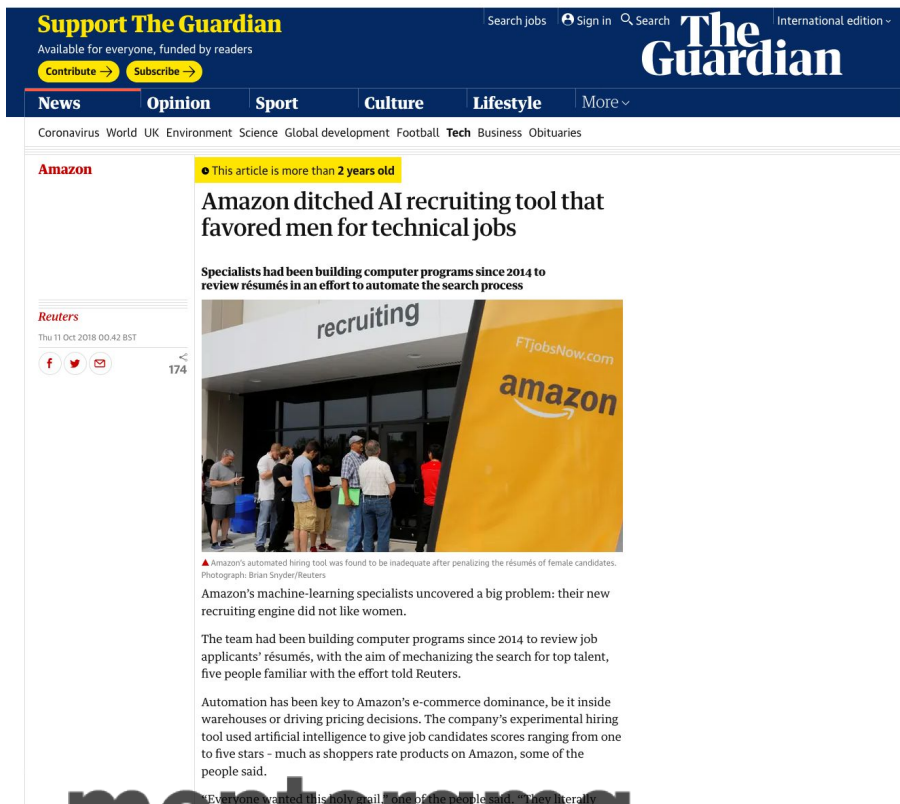


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IA: ética e responsabilidade

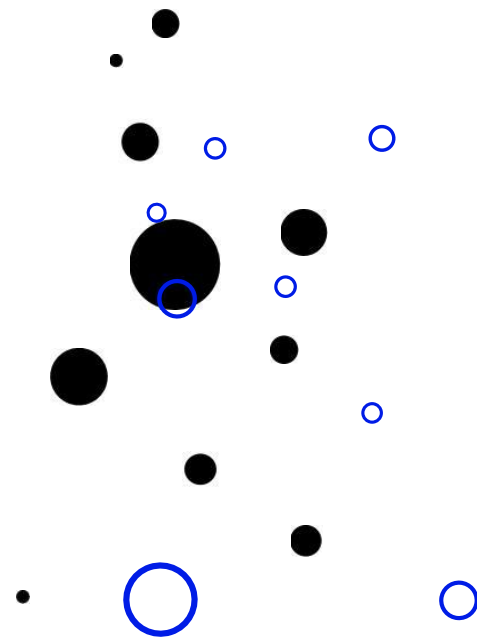
Viés



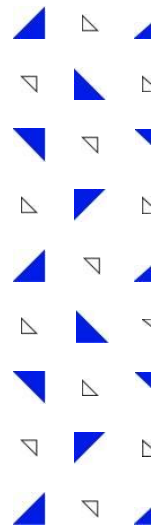
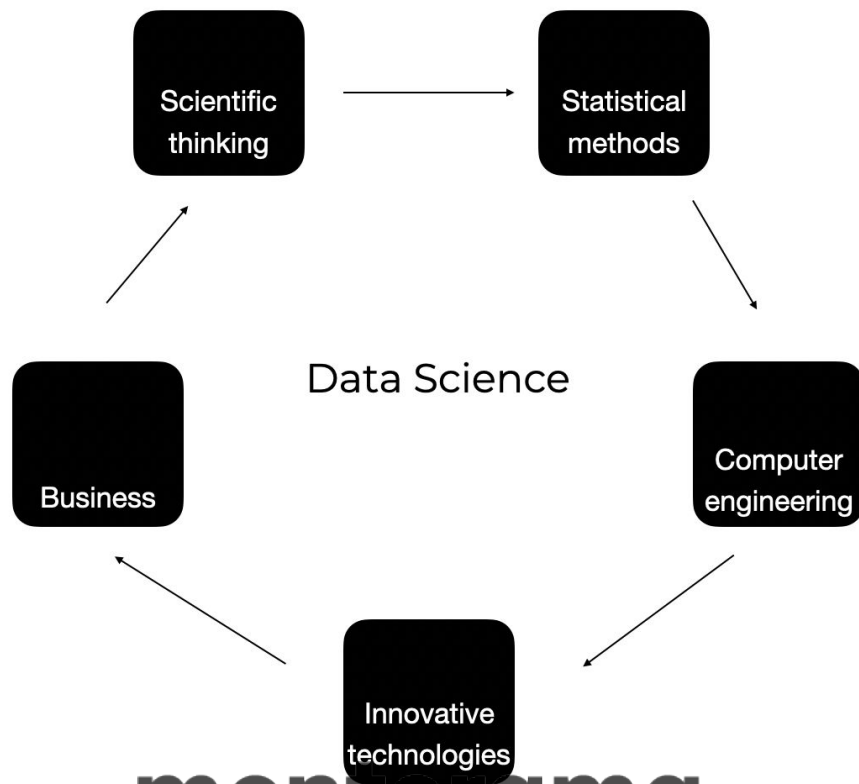
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Cientista de dados e seu ambiente de trabalho



Seu ambiente de trabalho



Seu ambiente de trabalho

Experimentation

Advanced
Analytics

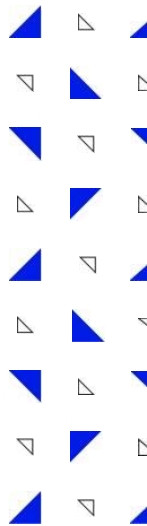
Business analytics

Modeling

Optimization

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Seu ambiente de trabalho

Experimentation

Growth

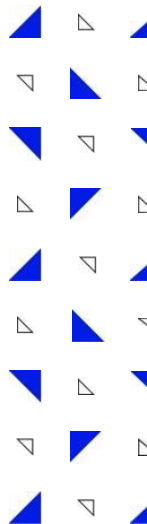
Data Driven

Teste A/B

Objetivos

Monitorar métricas

Visualização de dados

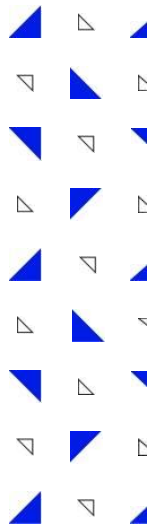


Seu ambiente de trabalho

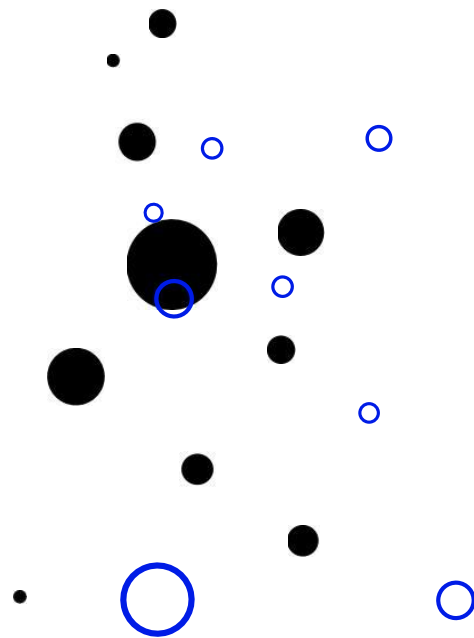
Comunicação

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Preparando o ambiente para o curso



Ambiente do curso

- Keras
 - Tensorflow
 - pystan + fbprophet – instalar pelo conda
- todos os utilizados no curso anterior: pandas, sklearn, numpy, matplotlib, etc...

