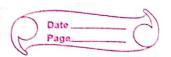
180110116036 D. J. Pate Bajes , 841e :--> Bajes theosen has been called the most powerful sure of probability and Statistics. > It describes the probability of an event, based on phios knowledge of conditions that might be seleted to the event. P(A/B) = P(B(A). P(A) (Phobability of A occusions) P CB) - masginalization. postesion (phobability OF Bocculing) for example, If a disease is seluted to age, then using Buges theosem, a person's age can be used to more accusately assess the probability that they have the disease, Compared to the assessment of the probability of disease made without knowledge of the person's age. sIt is a powerful law of probability that brings concept of 'subjectivity' of the degree of belief' into the cold, hard statistical modeling. Baje's Sule is the only mechanism that can be used to gradually the probability of an event as the evidence or late gathered Segmentially

Patel Dipam J.

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### D.J. Patel

That brings in the concept of subjectivity

or the degree of belief into the

Cold, hard statistical modeling.

-> Bajesian statistics and modeling have had a secent sesusgence with the global sise of AI and data driven machine learning system.

Josunula tos Bayes' theosem

 $P(A/B) = P(A \cap B) = P(A), P(B/A)$  P(B) = P(B)

P(A) = The probability of A occursing

P(B) = The probability of B occursing

P(A/B) = The probability of A given B

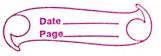
P(B/A) = The probability of B given A

P(A/B) = The probability of both

A and B occursing

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	nethod, the	sefose N	classifiess
3 In tuis	nethod 1 the	Enctances	and
ase built	from N-1	1013191-CC-F	1 6 6 6 6
each ty	pe is used	-to e(e)3311	) 3 mg/6
	stance s	1.51/ 2.08/1 1/1	

- Advantages of Cross-Validation:
- O more accusate estimate of out
- (2) mose l'efficient" as lot desta as every observation is used for both traning and testing.

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. The state of the same

### D. J. Patel



why over-fitting happens ? Explain it with example. model is too "complex" and fits itselevent chasactesistic (noise) in the detail -> over fitting happens when a model jeasne the detail and hoice in the training data to the extent that it hegatively impacts the performance of the model on new duter This means that the noise of Syndown fluctuations in the Boing leading data is picked up and leasned as concepts by the model the problem is that these concept by the model. The problem is that these concepts do not apply to new data and negative impact the model ability to generalize. > overfiting is more likely with non-parametric and non-linear models that we have mose fleri bility when jewning a target function as such, many Non-pasque -tric or technique to limit and const sain how much detail the model & leasing -> for example, decision thees are a non-pusq -metric machine learning algorithm -that is vost flexible and is subject to overfitting training dute this problem can be addressed by pruning a tree after it has learned in order to remove some of the deteril it has picked up.

## Patel Dipam J.

# 180110116036



### D.J. Patel

The state of the s
Inductive machine learning!
learning we are given input sumple(x) and problem is
output sample (f(x)) and problem is
1
Complete and the mapping
Liceful to ectimate the output
inco comple in the turner
To phychive it is almost always 400 was
to octionate the function so we use
looking for vest good approximation
of the function
ex (i) exedit sisk assessment of
-> The X is properties of the customer.
-> The fex) is chedit apphoved on Not.
2) face secognition.
-s The x are bitmakes & people faces.
-> The fix) is to assign a name to the
face, the transfer of the same
3) Automatic steesing:
-> The x are bit map imager from a
camera in front of the cas.
wheel Should be typned.
@ Disease diagranosis:
The x eve the properties of the
patient.
-> The fix) is the disease they so suffe
trom.