orlarks.		DATE: / / PAGE NO.:
N.	Introduction To	Machine la arnina
	// ((ah man f	
d wit 3 laps	tobe 3 tupes (no All can be categoria	two AT top by calcorded
Tal Challet Collins	compare machine learning vs artific	ial inklugence
mily	a familiality of themps	TA and Jas
A	Artiliaal Thellique	Machine learning
nd formation	aroung, and see It industry leavang and	1. policie of the second of th
(i)	Artificial intelligence is a kehnology (1)	Machine learning is a subset of AT
. 171	which enables a machine to simulate	which allows a machine to automateally
red knd ums	human behaviour!	
	minutured charlened data.	programming explicitly
100	The and of AT is be made were well a	The sent of All is 4 allow markets
(1)	The goal of AI is to make ture a smart (1) computer system like humans to solve	to learn from data so that they
k auto	reschied the made object how Reserve	Asiang sailar activity
	In AT, we make intelligent systems (11)	
		to perform a particular lask and give an
		accurate esult.
- spourte.	the two main subsets of AI.	Dup learning is the main subject of
	the two main subsets of Al.	machine learning
11111	AT 6 will count of signature	Mil had a limited cone (I)
	AI has a wide range of scope (1)	1. Institution and
	a a marking to exact an intelligent (in)	MI II working to coast machines
manda 1 (VI)	with which ran accorn various	that can perform any me reason
· (vI)) AT is concurred with maximizing the (m)	MI is mainly concerned with
	chances of Juness	allulay and product

1		DATE: / / PAGE NO.:
	Actifical Intelligence	Machine Learning
	Pseighnen -	0
(unv)	AI can be categorized into 3 types (m) which are Weak AI, General AI;	MI can be categorned into 3 types which are supervised learning, unsupervised fearning.
	and Shong AI	panning, remaining
100		It includes learning and sulf-terrection
	self-correction	when inhoduad with new data.
	men a south did statement de	which wills a machin
And (x)	AI completely deals with shudwid, (x)	ML deals with structured and semi
	11mi-smutured and unsmutured	shuctured data.
	data ·	
reduce where	of the a now to the good of the is	(1) The good of AT is to m
(x) That Here	The main applications of At are (xi)	The main application of ML are
10	SIRI, customer support, expert	Online recommender system, yough
	system, online games, robotice, etc.	jearch algorithmy, takebook auto
	but the world on the wife at	
no vine bur i		mining septing morphy
	- Alexan Common	
Q2 5 45 10	Explain the parametric and non-	parametric machine learning moduls.
A	of "AT median "Runna	the love main relates
	Parametric Machine Learning Model.	
(1)	A learning model that summarizes	data with a set of parameters of fixed
	size (independent of the number of	maining examples) is called a parametric
- malabara -	modulation of the seal through	t - manufact model it com't change
	No matter how much data you shrow a 14 mind about how many parameters	it may
	The algorithm involves 2 steps:	
(川)	Just a form for the function	(un) At is consecret with ,
(1	Learn the coefficients for the function	on from the training data.

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Jan 3 1 115 31	We estimate the unameters of the distribution of the
(17)	We estimate the parameters of the distribution from the ginn sample, plug in these estimates to the assumed model and get an estimated distribution,
	which we then use to make a decision. The method we use to estimate
	the parameters of a distribution is maximum likelihood estimation.
	(TV) SWELLE
(Y)	
(1) replien	
(11)	Spud: Parametric models are very fast when it comes to learning
((0)	Less Data They do not require as much training data and can work well
	even if the data is not perfect.
Arres 1	Limilations and survey you so supply a stab good of
(I)	
104 1 2	
day (in)	
(111)	A TI TO I WILL WAS COLORED TO THE CO
	mapping functions
	T) Examples (T)
(VII) (VIV)	Examples again (1)
	Logishe Regression (2) Linear Discriminant Analysis
(3)	Puriphon (4) Naïve Bayes
	as Explain various data formats that confirm the NI elements.
	Non Parametric Machine Learning Haprithmy.
(I)	Aleasythms that do not make thoma assumptions about the new of the napping
Makay	himselfon are called non-normetric machine learning algorithms.
(44)	Man service made and are man 111/11/11/11/11/11/11/11/11/11/11/11/11
AND 1 1.	prior knowledge and when you don't want to warry too much asout
1	choosing just the right features.
(44)	function are called non-parametric machine learning algorithms. Non-parametric methods are good when you have a tot of data and no prior knowledge and when you don't want to want to much about choosing just the right features.

	5	DATE: PAGE NO.:
	(
- 1 1		
(m)	0 00	Non-parametric methods lan towards additional precision because they by
reprinter ,	1 1	to find the but fit for the data points. This mappins of the cost of
to estimate	200	nucling a very huge amount of absenvations.
	_	the parameter of a distribution is maximum thelibert on
(M)		Benefity Tradition Could of liting a large number of temptional forms
14.	(1)	Flexibility: Capable of filting a large number of functional forms Power: No assumptions (or weak assumptions) about the underlying
Kersine A	Can	functions the land of the second of the seco
An deri	(m)	Performance: Can result in higher performance models for precision
	(in)	Course the hotel is not puried.
(Z)		1
	(1)	
with the little	1000	function with any land and any in the state of the state
10	(11)	Slower: A lot slower as they often have for more parameter to hain
	(10)	Orrfilling: More of a ruk to overfit the data and it is harder to
- hinging in	141	explain why smalle pudictions are made
[100]		sharman hindren
(五)		Examples:
	()) K Nearest Neighbours (11) Support Neutor Machiness Declaion Trees like LART and (4.5
	(11)	(3) Prophen Car Rough
03		Explain various data formats that confirm the ML eliments.
		Non Parameter Machine leaving Physiology.
the maging	22 1	Types of Data Formats:
V	(1:	NAWC (II) NCHW (III) NCHW
11 No	10 11	at . P-Lh lize : it to the number of invaled logiture
Justice 1	3416	for infirmal
[7	(1	for infirmed: it is the number of data components that make a data
(4		

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1	
	point for the must data. It is 3 for opening images and 4 for brancount
(m)	point for the input data. It is 3 for opaque images and 4 for transparent. H: Hught: It is the hught/measurement in y axis of the input data. W: Wieth: It is the wieth/measurement in x axis of the input data.
(IV)	W. Width: it is the width / measurement in x axis of the innut data.
(V)	D: Depth: It is the dipth of the input data.
10 10	and then whilefully dain is used in rejuction with a med more
diamen.	Jabelled data, it can produce considerable proposerior DWHMPPCD
	NHWC denotes (Batch, lize, Hught, Width, Channel). This means there is a
	4D array where the first dimension represents batch size accordingly.
	Sommerly winder laterial language Internal water when when the
	Joftware: Tensorflow
	P (I) Descriptive Hallered Anduric
	(m) NCHW 1 to willial many the estimate of (1)
of latery	NCHW dentes (Bath Stee, Channel Meight, Width). This means there is
	a 4D array where the first dimension represents Baken size.
the order	Commonly und data: Timages and the state of
	Software: MKLDNN jungath find has with to
	Tipleaded Hattelical Aryberth. WHO DA CHO
	(III) NCDHW
- (2)///07	NCDHW dinotes (Batch 192e, thannel, depth, hight width). This means
- Minit	June 18 a 5 D array where the first dimension represents both size. Commonly and data: videos
7 Juliu	Software saumentan maria primary to sear a willful
	(IV) NOHWC dente (Ruleh use Denth, Hught Width, Channel). The means
1100	NDHWC directs (Bakh size, Depth, Hight, Width, Channel). This much hure is a 5D array where the first dimension represents bakeh size.
BALEN	flure is a 5D array where the first amount represent
	Software: Tensor Flow
1	
1	the part deliver out among the control of the control

8	DATE: / / PAGE NO.:
A (I)	What is supervised, unsupervised, and semi-supervised learning? Supervised learning is the machine learning trusk of inferring a function from supervised hadring data. The training data consists of a set of hadring examples. The trusk of the supervised horner is to predict the output behaviour of a system for any set of input values after an mitial having phase Diagram: Training learning Model Test Accuracy Data Algorithm
(tv)	Training data includes both the input and desired results. For some examples, the correct results are known and given in inputs to the midel during the luming process. The construction of a proper haining validation and lest jet is crucial. Thuse multiples are usually fast and accurate.
(n) (m)	Advantages It performs classification and regression teaks. It performs classification and mapping the roult to a new sample We have compilete control over choosing the number of dances we want in the haining data. Disadvantages
(1) (n) (III)	Juprivised harring cannot haralle all the complex basks in Ml Computation time is high It requires a labelled data set. If requires a braining process.

		DATE: / /
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		Daniel Land
(I)	10	Unupervised learning
	(b)	Unsupervised learning is a type of machine learning where the models an harinal using unlabelled dataset and allowed to act on that data without any
		Jupervision.
	(n)	A dataset is provided without labels and a model learns useful properties of
		the smeature of the dataset. The main goal of unsupervised Guming is
		the smeature of the dataset. The main goal of unsupervised Guming is to discover hidden and intensting patterns in unlabelled data.
	(111)	The tasks typically involve grouping similar examples together, dimensionality
		reduction and density estimation
	(IV)	Diagram
		Quiput !!
		Input Interpretation Algorithm Prowsing
		raw data
		Al Inc.
		Advantages It does not require a baining dataset to be labelled Dimensionality reduction is easily accomplished using unsupervised learning Capable of finding proviously unknown patterns in data.
	(1)	Dimensionality reduction is easily acomplying unuprivised learning
	(11)	Capable of Anding previously unknown patterns in data.
		tapara of many
		Diradionlages
	(1)	Difficult to measure accuracy of or efficiences due to lack of predifined animals
		1 · /winter
	(11)	The results of his have his accuracy. The user muds to spend some time interpreting and labelling the dames which follow.
	(111)	The user was to spind some time intilprening and labelling the flushes or in females
		to a maried languing
		Jemi - supervised learning Jemi - supervised learning uses both labelled and unlabelled data to improve Supervised learning. The goal is to learn a predictor that predicts future
	(1)	Jum - supervised larging. The goal is to learn a predictor that pudicto future
		test data better.
	(11)	I practice by the practice value in teaming that
	1,	
I Designation of		

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to partie	and cheaper ways is to the thing of the chapter inspects ship
	him - supervised learning makes use of both labelled and label unlabelled
tel buyar	data for training, typically a small amount of tabelled data with a
	large amount of unlabilled data.
(IV)	When uplabelled data is used in conjuction with a small amount of
	labelled data, it can produce considerable improvement in learning accuracy
12 Pur 120	Melve tracto (Jakob, Sice, Hught, Width, Chappel); This has
lingy.	. It array where the first dimension represents batch 1920 according
05	Explain various Statistical Learning Approaches in Machine Learning
	Lotherry: Tourston
(1)	Descriptive Statistical Analysis
(1)	It summarizes or discribes the characteristics of a data set
(11) wars the	It consists of 3 basic categories of measures measures of central fending,
	variability, and fraguency distribution
(11)	Ducciptive Statistics often depict data using scatterplats, histograms, line graphs,
5	or 1tm and leaf displays was 12 months.
(1)	Infunital Statistical Analysis.
(1) his men	
(h) me	It allows as to make inferences about the entire set including specific
	examples within it, based on information obtained from a subject of examples.
(111)	These informes vely on the principles of evidence and utilize sample
	statistics as a basis for drawing broader condusions
	alle Oilele Dilette Diamon (v)
Man (III)	Predictive Analysis and Analysis between the Helicania (the
20(1)	Predictive models help make weather forecasts, develop video games,
(11)	translate value to text musicus customer dirvice devices de
(m)	translate voice-to-text musages, customer survice deuxions, etc. Types of predictive models include decision trees, regression, and neural
(11)	włosorks.

	11000000
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(I) Prescriptive Analysis by John Decrease of Land	12
(1) It is a form of data analysis that him to approve Wh	y do are mud to
achieve Mis / guidant habangal	(1) 8
(n) Prescriptive analysis course with productive analytics which a	the clata to
determine war-krom whomes which whomes and	
The fact of the sound bearing to be watered to be and the bearing	003
Offer types and analysis and a state of the	
(11) Exploratory data analysis	(u)
(m) Causal analysis	
(IV) Pata collection	
Trajejer lesting	
Data Alechan	
	1.3
the court was the court of the	(1/1)
and then all it down to get be specific and the meth down	
The considered of sector between metables and the contraction of	(V)
James at the feet has metabolism, perfected severe to be continuous and charles search	
confearles .	
It wishers doublinding and marining looks.	(1)
the state of the s	(0)
the form of the mark of the market of the states and the states of the s	
- 101 100	
Oinfrackers Contracted	
the state views the the albert from minut beings.	(1)
the analysis of the state of th	(0)

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