

# AJEET KUMAR Singh

## PERSONAL DATA

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PLACE AND DATE OF BIRTH: Jodhpur, Rajasthan | 13 July 1991  
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## OBJECTIVE

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To strive for excellence in the field of machine learning research and development of novel innovations to fulfil the organizational goals.

## WORK EXPERIENCE

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JUL 2016 - CURRENT	<b>Researcher at TCS Research, TRDDC, Pune</b> As a researcher, I am responsible to make machine learning and deep learning private and secure. Specifically, ensuring the model performance is up to par in adversarial situations and preventing any private information leakage.
JAN 2016 - JUL 2016	<b>Research Intern at Intel Labs, Bengaluru</b> Responsible for development of deep learning based algorithms for large scale object recognition, detection and localization in images.
JUN 2013 - DEC 2015	<b>Research Associate at International Institute of Information and Technology-Hyderabad</b> Responsible for development of interactive Optical Character Recognition platform for web using popular web technologies.

## EDUCATION

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DEC 2015	<b>MS by Research in COMPUTER SCIENCE AND ENGINEERING</b> <b>International Institute of Information Technology, Hyderabad</b> CGPA: 9.0
AUG 2011	<b>Bachelor of Technology in COMPUTER ENGINEERING</b> <b>Rajasthan Technical University(Jodhpur Institute of Engineering and Technology)</b> <i>First Class Honours</i> PERCENTAGE: 78.16%
MAY 2007	<b>Senior Secondary</b> <b>Central Academy(Board of Secondary Education, Rajasthan)</b> PERCENTAGE: 82.62%
MAY 2005	<b>Secondary</b> <b>Central Academy(Board of Secondary Education, Rajasthan)</b> PERCENTAGE: 89.50%

## PROJECTS & PATENTS

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JULY 2017 - CURRENT	<b>Secure &amp; Private Deep Learning</b> Developing private and secure deep learning algorithms for computer vision and deep learning tasks. <ol style="list-style-type: none"><li>1. An adversarial learning based algorithm/tool to add subtle noises to the images preventing recognition from predatory machine learning models.</li><li>2. Adversarial training for deep learning models to prevent attacks such as fast gradient sign method, iterative gradient sign methods.</li><li>3. Developing basic machine learning models using fully homomorphic encryption algorithm to prevent any privacy leakages using Microsoft SEAL Library.</li><li>4. To deal with privacy issues evolving from the data, aim is to develop an algorithm which uses very limited data learn the representation.</li></ol>
JUL 2016 - JULY 2017	<b>Data Masking System for Security and Privacy (ONE PATENT FILED IN INDIA, US AND EUROPE)</b> We developed a data masking system which automatically masks the sensitive contents in a document. This document can be either text or an image.
JAN 2016 - JUL 2016	<b>Large Scale Image Recognition</b> As part of the PCL team at Intel, my task was to develop deep learning based algorithms for large scale image recognition using popular Residual Networks and its variants.
JUN 2013 - DEC 2015	<b>A Web framework for Optical Character Recognition on Indic Scripts and Languages.</b> Development of a <a href="#">web-based OCR</a> to provide a state-of-the-art optical character recognition tool to the general public. This web tool contains preprocessing module, script identification module, word recognition module, and an post-processing module. The framework was adaptable to include and evaluate multiple OCRs.
AUG 2015	<b>Script and Language Identification using Recurrent Neural Networks (ACCEPTED AT ICDAR 2015)</b> In this project, we investigate the utility of popular Recurrent Neural Networks for identification of script and language in document images at word and line level. We achieve the highest accuracy of 99.0% percent in script identification and 94.67% accuracy in language identification. Experiments were done on 12 Indic scripts and 3 Roman-script based languages on 55K document images.
OCT 2015	<b>Script Identification in Multilingual Scene Texts (ACCEPTED AT DAS 2016)</b> We present an approach for automatically identifying the script of the text localized on the scene images using computer vision. We represent the text images using mid-level strokes based features. We achieved an accuracy of 96.70% on CVSI dataset and benchmark on our own Indian language scene text dataset.
NOV 2014	<b>Billion Word Imputation</b> This project was done under Machine Learning course requirement under the guidance of Dr. Shailesh Kumar. In this NLP project, our task was to find the missing word in a given sentence as well as its position in the sentence. We found the missing words and their location by finding the co-occurrence consistency calculated from $n$ -gram and <i>skip</i> -grams of the words available in training set.

## PUBLICATIONS

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PSTCI@CIKM 2021	INTERPRETABLE AND ROBUST FACE VERIFICATION. Preetam Prabhu Srikar Dammu, Srinivasa Rao Chalamala, <i>Ajeet Kumar Singh</i> .
PSTCI@CIKM 2021	EXPLAINABLE AND PERSONALIZED PRIVACY PREDICTION. Preetam Prabhu Srikar Dammu, Srinivasa Rao Chalamala, <i>Ajeet Kumar Singh</i> .
CSCML 2020	A RECOMMENDER SYSTEM FOR EFFICIENT IMPLEMENTATION OF PRIVACY PRESERVING MACHINE LEARNING PRIMITIVES BASED ON FHE. Imtiyazuddin Shaik, <i>Ajeet Kumar Singh</i> , Harika Narumanchi, Nitesh Emmadi, Rajan Mindigal Alasingara Bhattachar.
ICCV 2019	FROM STRING TO THINGS: KNOWLEDGE-ENABLED VQA MODEL THAT CAN READ AND REASON. <i>Ajeet Kumar Singh</i> (TCS Research), Anand Mishra (IIT JODHPUR), Shashank Shekhar (IISc), Anirban Chakraborty (IISc).
ICDAR 2019	OCR-VQA: VISUAL QUESTION ANSWERING BY READING TEXT IN IMAGES. Anand Mishra (IISc), Shashank Shekhar (IISc), <i>Ajeet Kumar Singh</i> (TCS Research), Anirban Chakraborty (IISc).
CSCML 2019	EVERYTHING IS IN THE NAME-A URL BASED APPROACH FOR PHISHING DETECTION. Harshal Tupsamudre (TCS Research), <i>Ajeet Kumar Singh</i> (TCS Research), Sachin Lodha (TCS RESEARCH).
ACCV 2018	DEEP EMBEDDING USING BAYESIAN RISK MINIMIZATION WITH APPLICATION TO SKETCH RECOGNITION. <i>Ajeet Kumar Singh</i> (TCS Research), Anand Mishra (IISc).
DAS 2016	A SIMPLE AND EFFECTIVE SOLUTION FOR SCRIPT IDENTIFICATION IN WILD. <i>Ajeet Kumar Singh</i> (IIIT-H), Anand Mishra (IIIT-H), Pranav Dabral (IIIT-H), C. V. Jawahar (IIIT-H).
DAS 2016	MULTILINGUAL OCR FOR INDIC SCRIPTS. Minesh Mathew (IIIT-H), <i>Ajeet Kumar Singh</i> (IIIT-H), C. V. Jawahar (IIIT-H)
ICDAR 2015	CAN RNNs RELIABLY SEPARATE SCRIPT AND LANGUAGE AT WORD AND LINE LEVEL? <i>Ajeet Kumar Singh</i> (IIIT-H), C. V. Jawahar (IIIT-H).
DAS 2014	TOWARDS ROBUST OCR SYSTEM FOR INDIC SCRIPTS. Praveen Krishnan (IIIT-H), Naveen Sankaran (IIIT-H), <i>Ajeet Kumar Singh</i> (IIIT-H), C. V. Jawahar (IIIT-H).

## TECNICAL SKILLS

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	LANGUAGES:	C, C++, Python, MATLAB
FRAMEWORKS AND TECHNOLOGY:		PyTorch, TensorFlow, Caffe
	DATABASES:	MySQL
WEB DESIGN:		HTML, PHP, JavaScript, AJAX, JQuery
	PLATFORMS:	Linux, Unix

## INTERESTS AND ACTIVITIES

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Machine Learning, Deep Learning, Computer Vision, Reading.

## REFERENCES

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AVAILABLE ON REQUEST.